LEATHER CRAFT

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THE HOBBYCRAFT SERIES

LEATHERCRAFT

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FOREWORD

The working and decoration of leather has long been an essential type of craft and art work. This text contains a treatment of the fundamentals of leathercraft suitable for beginning classes in leather work, school craft clubs, summer camps and home workshops. The projects have been carefully selected for pupil interest and the written materials have been checked for reading levels. The projects are arranged in relative order of difficulty with the simpler ones first. The most elementary projects may be done in the middle grades, but the more advanced projects are suitable for upper grade and high school pupils who are taking their first course in leathercraft.

All of the leathercraft projects in this book can be done with simple hand tools. The projects have been selected to provide ample opportunity to learn the fundamentals of leather work and to give the students ample opportunity to create designs to suit their own interests.

The authors wish to extend their thanks to the teachers and principals in the Chicago schools who have contributed pictures or materials to the content of this volume. Wilbur Mommsen, Nathan Krevitsky, Kathryn Twomey, Lewis S. Huber, Esther Coleman and George I. Wilson have made valuable contributions in the development of materials for leather work. The authors wish to thank the Tanners' Council of America, New York City, and the Armour Leather Company at Sheboygan, Wisconsin, for photographs and materials on the tanning of leather.

WILLIAM H. JOHNSON

LOUIS V. NEWKIRK

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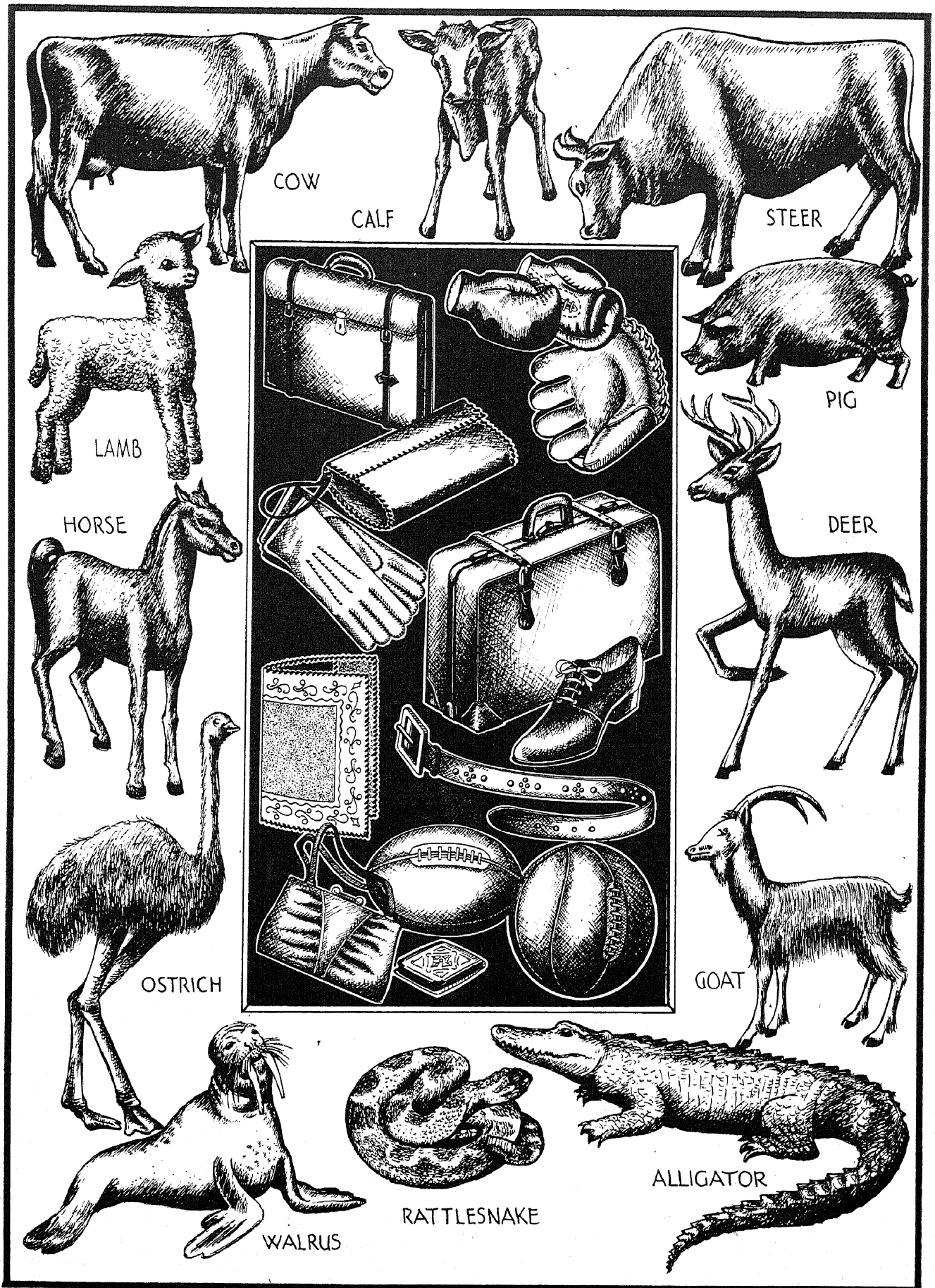## FIGURES

PLATES

LEATHERCRAFT

Plate 1. Sources of Leather.

THE MATERIALS YOU USE

Ancient records carved on tablets of stone found in the great pyramids of Egypt give us one of our earliest accounts of leather. The Egyptians found many uses for leather, including clothing, furniture ornamentation, and shields. Records made long before the birth of Christ tell how the Chinese cured skins with a mixture of mud and salts of alum. The Talmud tells that the Hebrews knew how to make leather and were the first people to use oak bark in tanning. The Arabians also discovered early how certain barks and roots helped to preserve the skins of animals. The Greeks and Romans added much to the knowledge of tanning processes and of various uses for leather. They used leather in many ways and often thought of it as a precious material. For a time the Romans used hides or leather as a basis for money.

The influence of the Moors, particularly their elaborate geometric designs, spread from Spain throughout Europe in the Middle Ages. During the same period leatherworking became well organized under the various trade guilds. The history of all peoples shows the early and lasting importance of leather as a necessary and useful commodity capable of attractive decoration.

The white man did not bring the use of leather to America. Long before the first explorers landed on our shores, the American Indians were tanning skins and using articles made from leather. They were especially skillful in making an extremely soft and flexible buckskin which would resist water.

Leatherworkers among the early American colonists used the oak-bark method of tanning. This method was used in America until the latter part of the eighteenth century when it was discovered that bark and woods from trees other than oak could be used successfully for tanning. Hemlock bark, chestnut bark, and certain plants were found to be useful. This was an important discovery to American leatherworkers since hemlock trees were plentiful. With the invention of modern machinery, such as the splitting machine of Samuel Parker, greatly increased production and many new uses for leather were possible.

An American chemist named Augustus Schultz discovered in 1884 that chromium salts could be used in place of bark compounds for tanning. Chrome leather can be made in a few days while bark-tanned leather requires months. Through the experiences and discoveries of hundreds of years, various methods of making leather were gradually combined. Now, the processes for making leather are quite the same throughout the world. Today, industries making leather and leather goods have become highly scientific and extremely important.

Making Leather

Although there are many variations in leather making because of different types of hides, different materials used for tanning and finishing, and different purposes for which the leather is to be used, the fundamental operations are all the same. These operations are pictured in the photographs, Figure 1 through Figure 8.

Since skins are often transported some distance to the tanneries, they are given a preserving treatment by being either sun dried or treated with salt as soon as they are taken from the animal. This keeps them fresh until they arrive at the tannery. If they are to be stored for
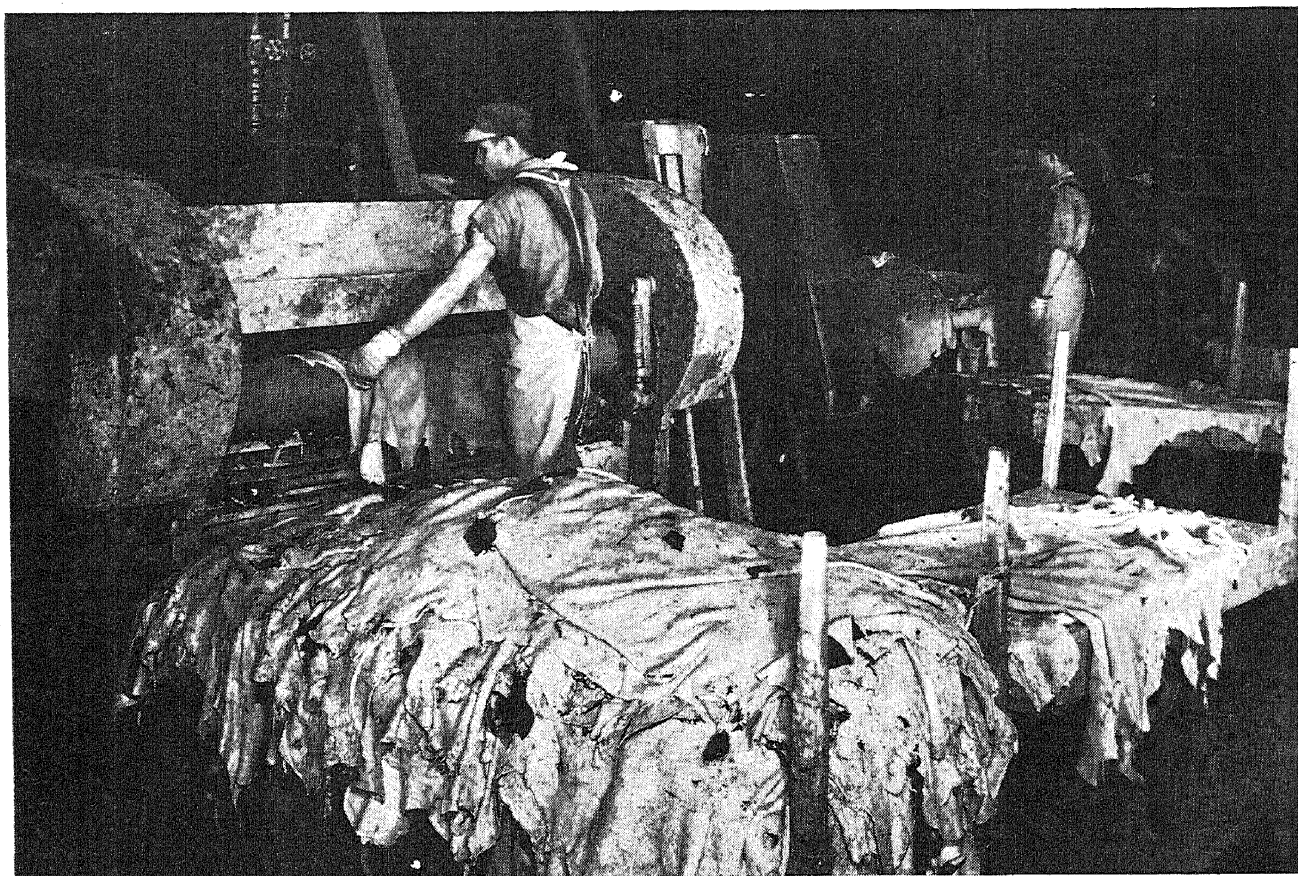
Figure 1. The unhairing machine, first operation after the hides have been soaked in lime to loosen the hair. A similar machine removes surplus tissue from the flesh side of the hide. Courtesy The Armour Leather Co.

some time before the actual process of tanning begins, the hides are again salted and then stacked in a cool place.

Preparing Hides

Before being tanned, all hides must be thoroughly washed and cleaned. This cleaning is done in large washing machines. Each hide is run through a fleshing machine which removes flesh and fat.

After the fleshing process is completed, the hides are soaked in a lime solution to loosen the hair so that it can be easily removed either by hand or by machine. The hides are next washed to remove all the lime and then are ready to be immersed in the tanning solution.

Tanning

The tanning liquid is made with the **tannin** extract from vegetable material such as the bark of oak, hemlock, hickory, and chestnut trees; or, tannin may be extracted from minerals. Chrome salts are most commonly used. Hides are kept in the tanning liquid for about fifteen days when minerals are used; when vegetable tannin is used the hides soak for several months.

After being taken from the first solution the hides are put in lay-away vats. A strong tannin solution is used in the vats and a layer of fresh ground tanbark is sprinkled on each hide as it is thrown in. The length of time required for tanning varies from a few days to months, depending upon the nature of the skin, the purpose for which it is to be used, and materials used in the tanning solution.

Currying

After the solution has thoroughly penetrated, the hides are cleaned, oiled, and dried. This process is known as currying. By using different kinds of oils, greases,

and other compounds it is possible to produce leathers with different characteristics: firm, soft, tough, or lasting.

Finishing

The finishing operations are of many kinds and depend upon the use to which the leather is to be put. These processes usually include dyeing, machining, and polishing to produce the desired finish such as suede or embossed. One of the most familiar finishes is that of sole leather which is produced by rolling or hammering to give compactness and wearing qualities.

Craft Leathers

The quality of leather used for craftwork is important. A poor grade of leather will not make a satisfactory article, no matter how good the workmanship. Leathers vary greatly and a leather which is suitable for one type of article may be unsatisfactory for another. It is best to have a dealer help you select the correct leather for different projects.

The vegetable-tanned leather, or as it is more often called, **bark-tanned**, is best suited for tooling purposes. Any tooling done on this leather while it is damp will be permanent when the leather dries. Chemical or **chrome-tanned** leather is not generally suitable for tooling because it cannot be dampened properly and does not take as good an impression as the bark-tanned.

Leather is sold in whole, half, and quarter hides as well as in smaller pieces. If you can use a whole or a half skin it is better to buy that amount as the price per foot is much less than if you buy a smaller piece. The skin selected should be firm but flexible, of even color, and as
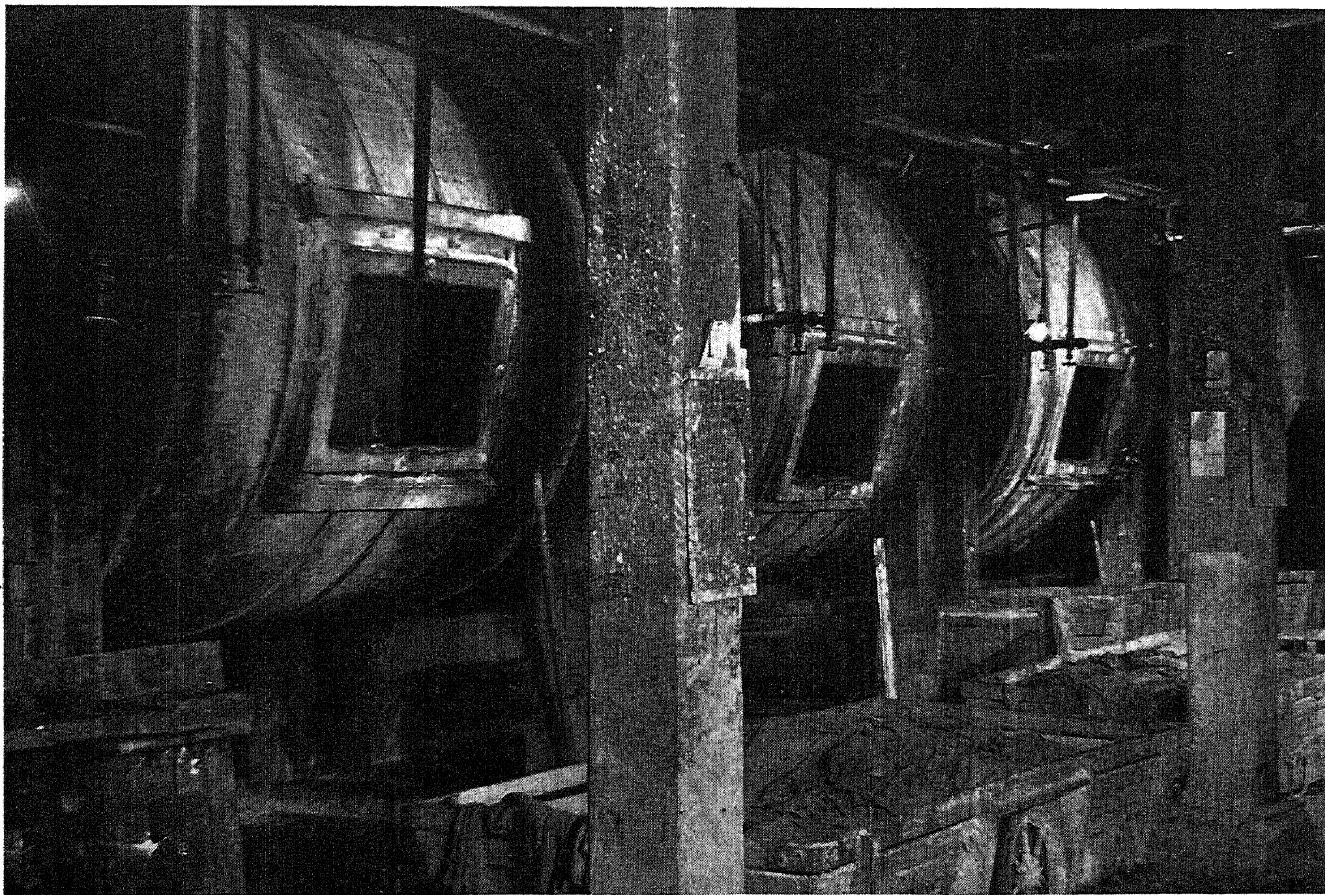

Figure 2. After liming, hides are soaked in solutions which neutralize the lime and open the pores of the skin so that they will absorb the tanning liquid. Then they are placed in great revolving drums for the actual tanning. Courtesy The Armour Leather Co.

free as possible from defects such as weak spots and holes. The best part of the hide is near the center of the skin, and leather from that part should be used for the better projects.

Leather should be kept loosely rolled with the **grain**, or hair side, out and covered to protect from light and dirt. Rolling a skin tightly with the grain side in will cause wrinkles which cannot be removed. Because leather is sensitive to pressure and scratches, care should be taken in the handling of it.

Tooling Leather

Leathers to be used for tooling should be smooth, of fine grain, and close texture. Calfskin, fine finished steer and cowhide, and some grades of morocco or goatskin, and sheepskin may be used.

Calfskin is the best craft leather, especially for small articles where a beautiful finish and fine decorations are used. It may be purchased in the natural shade or in a wide variety of colors and in different thicknesses. Calfskin may be used for making tooled articles such as key cases, billfolds, book covers, and purses. Natural or uncolored calfskin is well suited for coloring designs and the tooling produces a rich color in contrast with the light untouched skin. Calfskins will range in size from 10 to 14 square feet.

Steerhide and cowhide are coarser grained and heavier than calfskin. However, they are often prepared in such a manner that they may be used in tooling projects. Tooling steerhide rates next to calfskin as a tooling leather; it may be used for most leather projects. Steerhides vary from 20 to 28 square feet in size. Cowhides are excellent for projects that must stand up under hard wear. Tooled belts are often made of cowhide. These hides range from 20 to 25 square feet in size.

Figure 3. The next operation is "splitting." The term "shaving" would have more meaning to the layman because the purpose is to reduce the leather to uniform thickness. The "splits," however, are finished and used by manufacturers who do not require as fine a product. Courtesy The Armour Leather Co.

Figure 4. Next, the staking machine. A wooden arm moves with an elliptical motion so that blunt steel blades massage the leather, under the guidance of an operator, and soften it. Courtesy The Armour Leather Co.

Sheepskin is available in grades that are suitable for tooling. Sheepskin does not tool as well as calfskin but the cost is much less. It has a loose texture and stretches easily. It may be used for bookmarks, book covers, and purses. A sheepskin will have from 6 to 10 square feet of leather in it.

Soft Leathers

Soft leathers are used for work of a delicate character. They may be finished for use on either the **grain** or smooth side or on the **flesh** or velvet side, or, on both. Decoration on this type of leather may be of paint, applique, or beading.

Sheepskin is made in natural, white, and a variety of colors. Sheepskin with the wool or hair left on is used for toys, rugs, and mittens. **Suedes** are used for garments, pocketbooks, bags, and cases. **Skiver,** which is thin leather made by splitting the skin by machine, is used for linings and applique. **Velvet Persian** is a skin selected from Persian sheep and has a fine velvet or flesh side. It is used for dainty articles such as cushions, table runners, and fancy bags.

Goatskin is used to make a fine-grained leather called morocco. It gets its name from the Moors who were the first to make it. The better grades of morocco may be flat tooled. This leather takes dyes and paints readily. Morocco is used for billfolds, linings and bookbindings.

Elkhide and **deerskin** are used for making moccasins, belts, vests, and shirts. These hides generally come in two colors, natural and brown.

Pigskin is a tight-grained leather. The better grades may be tooled to a certain extent, but it is not advisable to try to tool pigskin. The most important features of pigskin are its resistance to wear, its
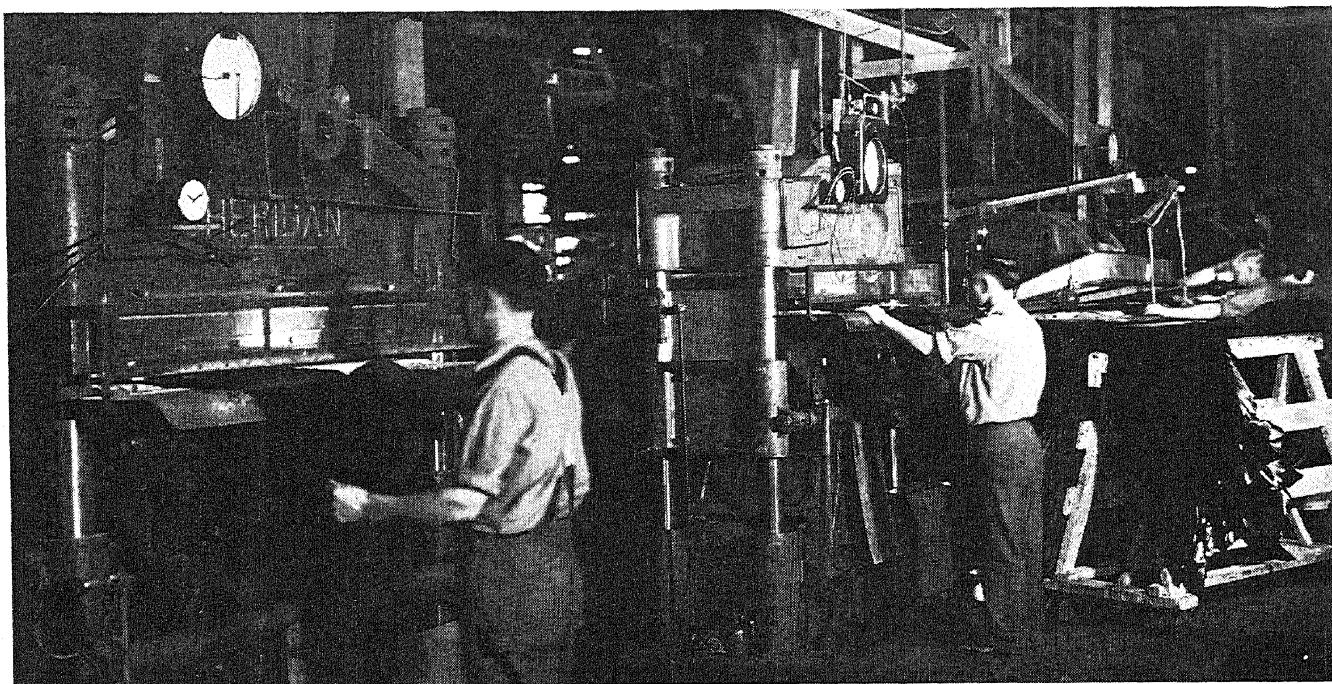
Figure 5. Leather is finished by machine or by hand according to the appearance desired and the quantity to be worked. The hydraulic presses exert a pressure of 300 tons on the leather and give it a smooth finish, or designs may be embossed. Courtesy The Armour Leather Co.

durability, and its handsome appearance. The markings on the surface of pigskin are the pores left from the removal of the bristles. Pigskin is used for bags, purses, billfolds, book covers, and other articles which will be given hard use.

Fancy Leathers

A number of fancy and unusual leathers may be purchased in both light and heavy varieties. Among these are **lizard, snake, alligator,** and **ostrich.** These skins are expensive but are worth while for certain articles. Lizard, snake, and alligator skins cannot be tooled but are naturally decorative. They may be used for billfolds, purses, and handbags. Ostrich skin is marked by a small rosette which distinguishes it from other skins. It is the only usable leather made from a bird's skin and can be made into purses, wallets, book covers, and other articles.

Scrap Leather

Scraps of many kinds of leather may be purchased from leather supply houses. These pieces are large enough for small projects, such as coin purses, bookmarks, and blotter corners. Scrap is usually sold by the bundle or by the pound; a pound is usually enough for 25 to 30 coin purses. Larger scraps, skins from which the centers have been cut, are also available at about one-half the price of regular skins.

Old Leather

Discarded leather objects may be used for some projects if the leather is in good condition. Often old dirty leather may be cleaned and polished and made as good as new. Use saddle soap or mild soap and water for cleaning the leather; never use gasoline or benzine for cleaning.

Modeling Sheet

Modeling sheet is a cellulose product which is adaptable to craft projects. It may be tooled in the same manner as leather, using the regular leather modeling tools. Articles such as book ends, book covers, box covers, and lamp shades may be made from this material.

Modeling sheet is not flexible when dry and cannot be used for articles such as

billfolds which will be opened and folded many times. Any curves or angles in the finished article such as a bend around a box corner or a curved shape must be formed while the modeling sheet is damp and pliable. India inks are used successfully in dyeing this type of material.

Lacing

Lacing, often used in fastening and for decoration, may be bought by the yard or it may be cut from the leather used for making the article. The purchased leather lacing is better because it is beveled and will give a neater appearance to the work. Calf and goatskin lacings are used for most work. Sheepskin lacing is used for dainty articles.

Lacing usually comes in two widths, 3/32″ and 1/8″. It may be purchased in various colors, or natural color lacing may be bought and dyed.

Home Tanning of Leather

Making Rawhide

Soak the skin in clear water. When soft, lay the hide on a smooth rounded surface and scrape off the flesh. Soak the skin until the hair pulls away easily in a lime bath made of one pound of lime to six gallons of water. Pour a small amount of water onto the lime and wait until the chemical action stops before adding the rest of the water. The soaking of the skin may take from a week to ten days. Wash the hide in clear water and scrape off the hair with a dull knife.

Delime the hide by soaking it for 24 hours in solution of one quart of vinegar

Figure 6. Hand finishing is used, however, in making fancy leathers. The photograph shows tanners coloring the hide for a special order. Courtesy The Armour Leather Co.

Figure 7. These craftsmen are "hand boarding" pieces of leather to bring out the fine grain. The "pebble" leather such as that used for women's handbags is finished in this manner. Courtesy The Armour Leather Co.

to five gallons of water. Then wash the hide in clear water.

While the hide is wet lace it in a stout frame. Pierce holes around the edges two inches apart and lace with strong cord. Twist each pair of cords with a small stick to stretch the hide. When dried under the strain of stretching, it is rawhide.

Making Buckskin

Grease the raw hide with neat's-foot oil, bacon fat, or butter. Let it stand in a shaded place for two days.

Make strong soapsuds, using one and a half pounds of soap flakes to one gallon of water. Soak the hide in this until you can squeeze moisture through it. This will sometimes take as long as a week. Stir the solution well every few hours.

When moisture passes through the leather easily rinse the hide well in clear water and work it soft by pulling it over the edge of a board. This is hard work and sometimes hours of working the leather are required to make it soft.

Make a tent of the hide. Dig a hole in the ground at the bottom of the tent and build a small fire in the hole. Use damp wood or sawdust to get plenty of smoke without flames. Treat the skin until the desired color is obtained. The smoke both tans and colors the skin.

Making Bark-Tanned Leather

Soak the dried hide in water until it is soft. Scrape off any remaining bits of flesh. Soak the hide in lime water until the hair pulls out easily; this may take a week or ten days. Scrape off all hair and wash the hide thoroughly to remove all lime, using borax in the water. Rinse well.

Grind or pound oak bark into small pieces. Using twice as much water as bark, boil the mixture to obtain a tannin solution. Soak the hide in this solution until it is tanned. This may take as long

as six weeks. Good results are obtained by changing to a stronger solution every week. Hang the tanned hide in a shaded place to dry.

When it is dry, dampen the hide and work it over a board, pulling and stretching to make it soft. A small hide may be worked with both hands as if you were washing it. Allow the hide to dry. Oil the hide with neat's-foot oil and continue working until it reaches the desired softness.

Chrome Tanning Leather

Have your druggist mix the following:
Common salt............................... 1/4 lb.
Copper crystals........................... 1/8 oz.
Sodium carbonate crystals...... 1/4 lb.
Chrome alum crystals...............1 1/4 lbs.

Dissolve the mixture in two quarts of water. Remove the flesh and hair from the hide. Dilute one part of the solution with twenty parts of water to make enough liquid to cover the hide. Allow to stand in the liquid for twelve hours.

Wring out, and work it while it is drying so the leather will remain soft.

Tanning Furs

Flesh the hide. Then mix 1/4 pound of common salt, 1/4 pound of powdered alum, and 1 ounce of borax. Add just enough hot water to this mixture to melt it. When the solution is cool, mix in bran meal, corn meal, or sawdust to make a thick paste. Spread this paste about 1/4 inch deep on the flesh side of the hide. Fold the sides to the center and roll the fur into a tight bundle from top to bottom. Store the roll in a cool place.

Unroll daily to see that the hide is moist; if it is drying out sprinkle on a little water. After a week, scrape off all the paste and wash with clear water. If the hide is a thick one it is best to give it another layer of paste and let it stand for another week. Then scrape off all the paste, wash it well with clear water and hang it up to dry. Work the skin with the hands while it is drying to keep it soft.

Figure 8. Final operation is sorting and grading finished leather according to weight, quality, color, and finish. Courtesy The Armour Leather Co.

LEATHERWORKING TOOLS AND ACCESSORIES

The tools, equipment, and accessories for leather craft are simple and inexpensive. The beginner can start with a few essential tools and add others later as his skill increases and the need for more tools develops. The cost of a beginner's leatherworking tools is small in comparison with the value of the articles made with them and the enjoyment of planning and making useful and decorative things. The tools and equipment needed by a beginner in leatherwork are shown on page 13.

The **tracer** is used to copy designs on leather. It is also useful for enlarging and lining up holes while lacing.

The **edge trimmer** is used to make a small bevel on the edge of the flesh side of projects; this gives a more finished appearance.

The **modeler** shown is a polished metal tool with a spoon shape on one end and a point on the other. The pointed end is used for line tooling and stippling. The broad end is used for flat tooling and embossing. Other shapes of modeling tools such as the **diamond point, ball point,** and **deerfoot,** shown on page 22, are useful in leather tooling but are not necessary for a beginner.

The **edge creaser** is used to mark a line along the edge of leather. It gives a more finished appearance to articles that are not laced. The edge creaser usually has two ridges on its working end. In use, one of the ridges acts as a guide along the edge of the leather while the other ridge creases a line on the surface.

The **spacing wheel** is used to mark the holes to be punched for lacing. The wheel which makes six marks to the inch is suitable for 1/8" or 3/32" lacing.

A **sharp knife** is needed for cutting out leather projects and for **skiving** which is

paring leather to reduce the thickness at the edge. The style shown has an adjustable blade.

The **punch** is used for punching round holes for lacing. The one illustrated is a single-hole spring punch. Punches are sold that can be adjusted to punch five different sized holes and also a slit. A drive punch is needed to punch holes in places that cannot be reached with a spring punch; drive punches can be bought in several sizes.

The **eyelet spreader** is used to spread the end of an eyelet. The spread eyelet must then be flattened onto the leather.

Stamping tools are used for background work and also for stamping designs on leather.

A **snap setting outfit** is used for attaching snap buttons. The set shown consists of an anvil, hammer, and bodkin.

The **mallet** of hardwood is used for striking stamping tools, the eyelet spreader, and the drive punch.

A **metal-edged ruler** is a necessity as a guide for the knife in cutting out leather projects. A steel square of the 7" x 12" size is useful when cutting leather to get edges exactly square.

A **cutting board** of soft wood is needed when cutting leather. Soft wood without a prominent grain is best because it will not deflect the knife and cause a crooked cut. Linoleum also makes an excellent cutting surface because the knife point can cut into its surface easily and is not deflected. Such a base is useful when cutting leather because the knife must cut through the leather with one stroke. To do this the knife would of necessity have to cut partially into the surface beneath the leather. This surface must be of such a nature that it will not deflect the knife
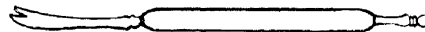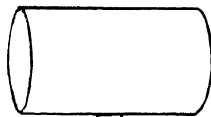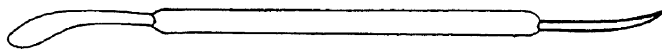
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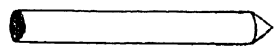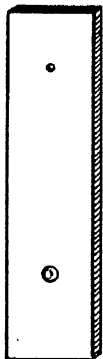
Eyelet Spreader
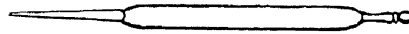
Tracer

Stamping Tool

Edge Trimmer

Modeler

Edge Creaser

Snap Setting
Outfit

Mallet

Spacing Wheel

Knife

Scissors

Punch

Plate 2. Tools and Equipment.
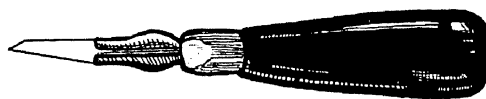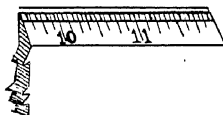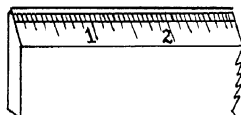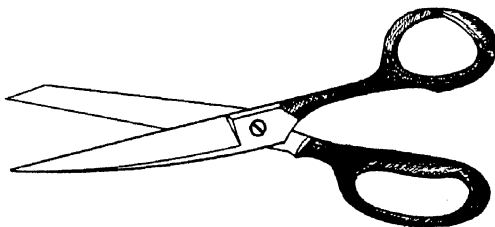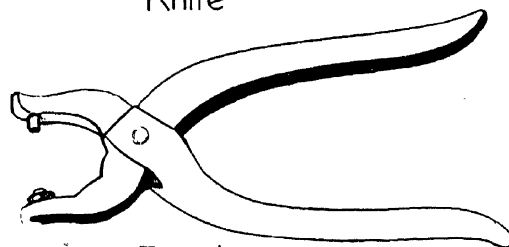
and will not slow down or stop the cutting stroke.

A hard nonabsorbent surface is needed on which to do leather tooling. A piece of plate glass, heavy linoleum, or a hardwood board will serve the purpose well.

A strong sharp **scissors** is needed by the beginner to cut curves. Do not try to cut curves with a dull scissors. It will give a ragged edge and will also stretch the leather along the edge you cut.

Making Your Own Leatherworking Tools
Snap Setting Outfit

A small block of wood may be easily made into a tool for attaching snap buttons. Make a dent on the surface of the wood with one sharp blow with the ball end of a ball-peen hammer. This depression is placed over the cap to hold and protect it when attaching the cap and eyelet.

Drill a hole large enough to fit the upper part of the spring. This hole is needed so that the wood will rest on the base of the spring when attaching the spring to the post.

Eyelet Spreader

An eyelet spreader may be made by filing a cone-shaped tip on a 3″ length of ¼″ diameter Bessemer rod.

Stamping Tools

You may make your own stamping tools from large nails or spikes with a small triangular file. It is possible to make many different designs as shown. First file off the point of the nail. Then with the sharp edge of the file, file a design on the nail. Use the center punch to make dots in the design if needed. Be sure you are holding the punch in the right place before striking the blow with the hammer. Polish the working face of the stamp with fine emery cloth so that it will not scratch the leather.

Brass rod may be used successfully for stamps. It can be filed easily and does not stain the leather.

An Awl

A small awl for punching and enlarging holes may be made by driving a nail into a 3″ length of ¾″ dowel rod and filing the nail to a point. A piece of rounded wood may be used if you have no dowel rod.

Leather Punch

A single-hole leather punch may be made from an ordinary nail about sixteen penny size. File the point of the nail until it becomes flat. Then file off four sides of the end until the point is rectangular in shape, about the same size as the lace to be used. A round punch may also be made.

In using this punch the leather must be placed on the end grain of a hardwood block. Hold the punch in the correct place in an upright position and strike a sharp blow with a mallet.

Leather Cement or Vegetable Glue

Either of these may be used to cement linings in place or to join pieces of leather; neither affects the flexibility of the leather. Rubber cement is also used with good results.

Paste

In some cases ordinary paste may be used to attach leather and linings.

Glue

Ordinary glue should only be used on leather with great care as it has a tendency to soak through the leather. Glue also stiffens the leather, making it unsuitable for articles which have to be bent or folded. Glue may be used in projects made with modeling sheet.

Stains and Dyes

Water dyes are powdered aniline dyes mixed with water; spirit dyes are powder aniline dyes mixed with alcohol. Both of these are easy to apply and give satisfactory results. The leather must be moist enough to prevent capillary action which would cause the dyes to spread beyond the desired boundaries. They are applied

to small areas with a soft camel's-hair brush. Oil stains are thinned with turpentine. They are used to produce soft effects and to bring out the grain. This class of stains is applied to dry leather and wiped off with a soft cloth immediately after application. Artists' oil paint makes a good stain if thinned to a watery consistency with turpentine.

Water Colors

Ordinary water colors may be used to color backgrounds and design areas.

India Ink

Waterproof India inks are excellent for coloring designs and background areas in leather work. The ink must be applied quickly to avoid streaks. Use a brush to color small areas and a ruling pen to color straight lines.

Colored Pencils

Colored transparent indelible pencils can be used to color tooled lines while leather is still moist.

Soap

Use soap and water to clean dirty leather. Commercial leather cleaners may be purchased from a supply house.

Saddle Soap

This is the best material for cleaning and polishing as it contains nothing that is harmful to the leather.

Wax

Various wax preparations may be used to polish and preserve leather.

Eyelets

Eyelets are used for fastening key frames to leather and also for protecting the holes in a leather belt.

Rivets

Rivets are used for attaching two pieces of leather, for attaching metal accessories, and sometimes to form part of the decoration.

Studs

Studs are easily attached ornaments that may be either plain or decorated; they are frequently jeweled. They are used most often for belts, small key cases, name pads, and calendar pads.

Clasps and Snap Buttons

Clasps are used mainly on purses. Snap buttons are used on wallets, purses, book covers, and other articles which must be securely closed. They may be obtained in different colors.

Frames for Key Cases

Key frames with swivel hooks are used for larger key cases. These frames have from two to eight hooks.

Zippers

Zippers are often used on billfolds, bags, and cases. They may be sewed on by machine or laced in place. Zippers may be bought in which the metal is colored to match the color of the tape.

Colored Beads

Colored beads are used in decorating soft leather. If the article is to have considerable use, moccasins for example, each bead should be individually attached to the leather. In other cases four or five beads may be strung and attached at one time.

INDEX OF MATERIALS

The items in this list may be purchased from any dealer in leather goods and supplies or from a handcraft shop. Prices will vary in different parts of the country and those given below are merely an indication of the relative cost of supplies.

Awl ....25 cents
Beads, 1,000 for............................. 8 cents
Beveler ....35 cents
Buckles, small .... 5 cents
Cement, leather, tube.....................25 cents

Drive punch ....20 cents
Edge creaser ....55 cents
Edging tool ....45 cents
Eyelets, 1,000 for....................65 cents
Eyelet spreader ....20 cents
Fid ....35 cents
Glue, pints ....35 cents
India ink, colored, ½ pt.............90 cents
Key frames—2 hooks.................. 3 cents
  —3 hooks .... 4 cents
  —4 hooks .... 5 cents
  —6 hooks .... 7 cents
  —8 hooks .... 9 cents
Lacing—goatskin   3/32″, yd...4½ cents
  —imitation leather   3/32″, yd...2 cents
  —rawhide belt   ⅛″, yd...6 cents
Lacing needles, each..................12 cents
Leather dyes, 2 oz. jar................35 cents
Leather enamel, 2 oz. jar.............20 cents
  —enamel thinner, 2 oz. jar......15 cents
Mallet, hardwood......................35 cents
Modeling sheet, 20x24 inches.......60 cents
Modeling tool—plain..................40 cents
  —ball point ....60 cents
Polishing wax, 1 lb. can..............45 cents
Rivets, gross ....50 cents
Rubber cement, 1 pint can...........30 cents
Saddle soap, 5 oz. can................25 cents
Screw posts, 100 for.................. $1.00

Skiving knife...........................35 cents
Snap fasteners, ⅜″....................13 cents up
  —gross ....85 cents
Snap fastener set......................45 cents
Spacing wheel..........................50 cents
Spring punch............................ $1.20
Square, metal...........................25 cents
Stamps, metal, each...................30 cents
Stippler ....40 cents
Thonging chisel........................35 cents
Thread, linen, 2 oz. ball..............45 cents
Tracer ....20 cents
Zippers ....20 to 25 cents

Leather—Prices Are By The Square Foot

	Size	Square Foot
Cowhide (medium weight) ......18 to 24 sq. ft.		$ .60 to $ .75
Lambskin .... 8 to 10 sq. ft.		.30
Pigskin ....12 to 14 sq. ft.		.60 to .70
Scrap leather, pound..........		.50 to 1.00
Sheepskin skiver.. 8 to 12 sq. ft.		.20
Sheepskin suede.. 6 to 8 sq. ft.		.28 to .35
Steerhide—back, unfinished ....24 to 28 sq. ft.		.45 to .55
Tooling leather:		
—calfskin ..... 9 to 14 sq. ft.		.60 to .75
—cowhide (medium weight) .....23 to 28 sq. ft.		.45 to .65
—sheepskin ... 6 to 8 sq. ft.		.25 to .30

WORKING WITH LEATHER

The choice of the design to be used in the decoration of leather objects is of great importance in determining the final appearance. The design must always be appropriate to the size, shape, and purpose of the article and should be simple rather than elaborate. The one chosen should be suitable for the method of decoration to be used.

Alternate designs are given for many of the projects in this book. Often designs are suitable for use on other projects than those for which they are suggested.

Designs are usually furnished with the ready-cut projects sold by supply houses; sometimes a choice of two or three is offered. These are selected for the particular object on which they are to be used. However, the craftsman may wish to draw original designs or to use those found in magazines and books.

Paper Patterns

Paper patterns are necessary to the leathercraft worker. There are two different patterns that are used. One pattern serves as a guide in cutting the leather; the other is used in tracing the design onto the leather.

Before beginning the construction of any article make a paper pattern to the exact size of each part of the project; use a strong paper. If the project has any folds, as a billfold, fold the pattern also. The pattern will represent the finished project and may be checked for space for decoration, the space for lacing, folds, and the location of the snap button. The latter is often made a part of the tooled design.

A pattern is also needed for the designs that are to decorate the article. This is best made on strong **tracing paper** which is transparent. By using transparent paper, designs may be traced from books without doing damage to the printed page.

Enlarging a Design

A traced design may easily be made larger or smaller to fit within a certain space. Draw horizontal and vertical lines $\frac{1}{2}''$ apart on the design that you wish to change in size. This will result in $\frac{1}{2}''$ squares covering the paper. Then on a clean piece of paper draw horizontal and vertical lines to again make squares. If you desire the design to be smaller, the lines must be closer together to make smaller squares; if you want the design to be larger, the squares must be larger. For example, if you wish to make the design one half the original size, the squares on the new paper must be $\frac{1}{4}''$ or one half the size of the squares in the original design. If you wish to double the size of the design, the second paper must have $1''$ squares.

After drawing squares of the desired size on the second paper, copy the lines from the original design making sure that the new lines are in the correct square and the proper location. For example, if a line crosses the third square from the right on the top row in the original design, it must cross the corresponding square on the second paper.

Numbers on the horizontal and the vertical lines on both papers aid in locating the enlarged or decreased design in the correct squares.

Cutting Leather

Place the paper pattern on the leather in a place free from defects and where no leather will be wasted. Hold the pattern firmly in place or fasten it to the leather
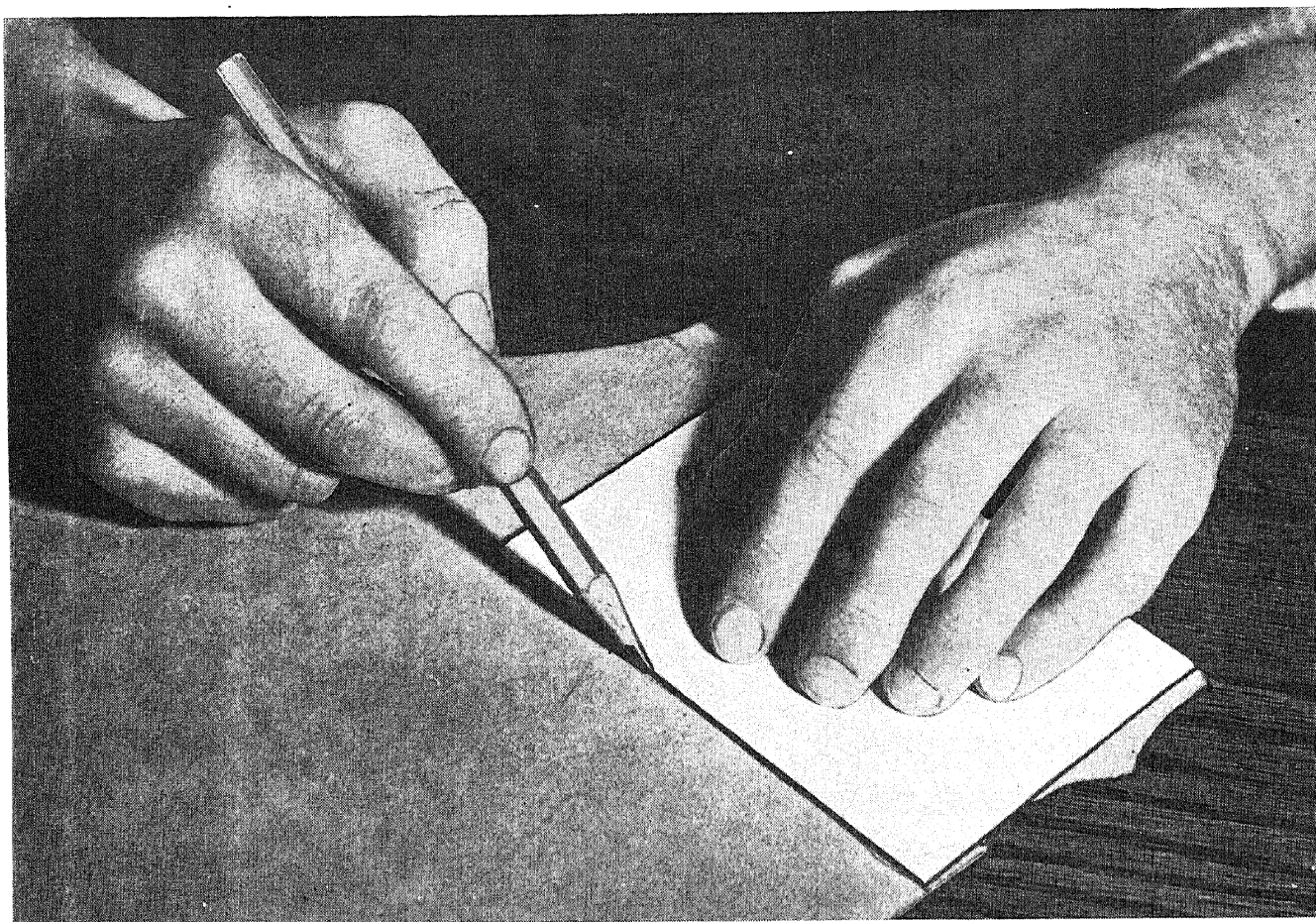
Figure 9. Tracing Around the Pattern.

with paper clips. Mark around the pattern using a soft lead pencil if the leather is light colored or an awl if dark colored. Remove the pattern and place the leather on a soft woodcutting board or a piece of linoleum. The grain of hard wood might deflect the knife while cutting.

Cut out the leather using a sharp knife. Use the metal-edged ruler as a guide for cutting straight lines; cut curved parts with a sharp scissors. Cut entirely through the leather in one cut. It is well to practice cutting leather on some scrap before attempting to cut out your first project. A single-edge razor blade in a holder, instead of a knife may be used for cutting out material.

Moistening Leather

In order to take and to retain impressions made upon it, leather must be moistened before tooling. Wet the back or flesh side of the leather with a small sponge or soft clean cloth until moisture appears in even spots on the grain side. Go over the front side of the leather lightly until the surface is uniform in color.

Leathers vary as to the amount of moisture needed to make them tool easily. Steerhide will need less moisture than calfskin, and tooling sheepskin needs very little moisture. For tooling, the grain or smooth surface of the leather should not wrinkle or ooze moisture when the tool is pressed along it. If this occurs, the leather is too wet and must be put aside to dry partially before tooling. If while working, the leather dries so that tooling becomes difficult, moisten the whole piece again. Never moisten only part of the leather. If you do, water marks are likely to show, especially in natural tanned leather, or the leather will expand and shrink unevenly.
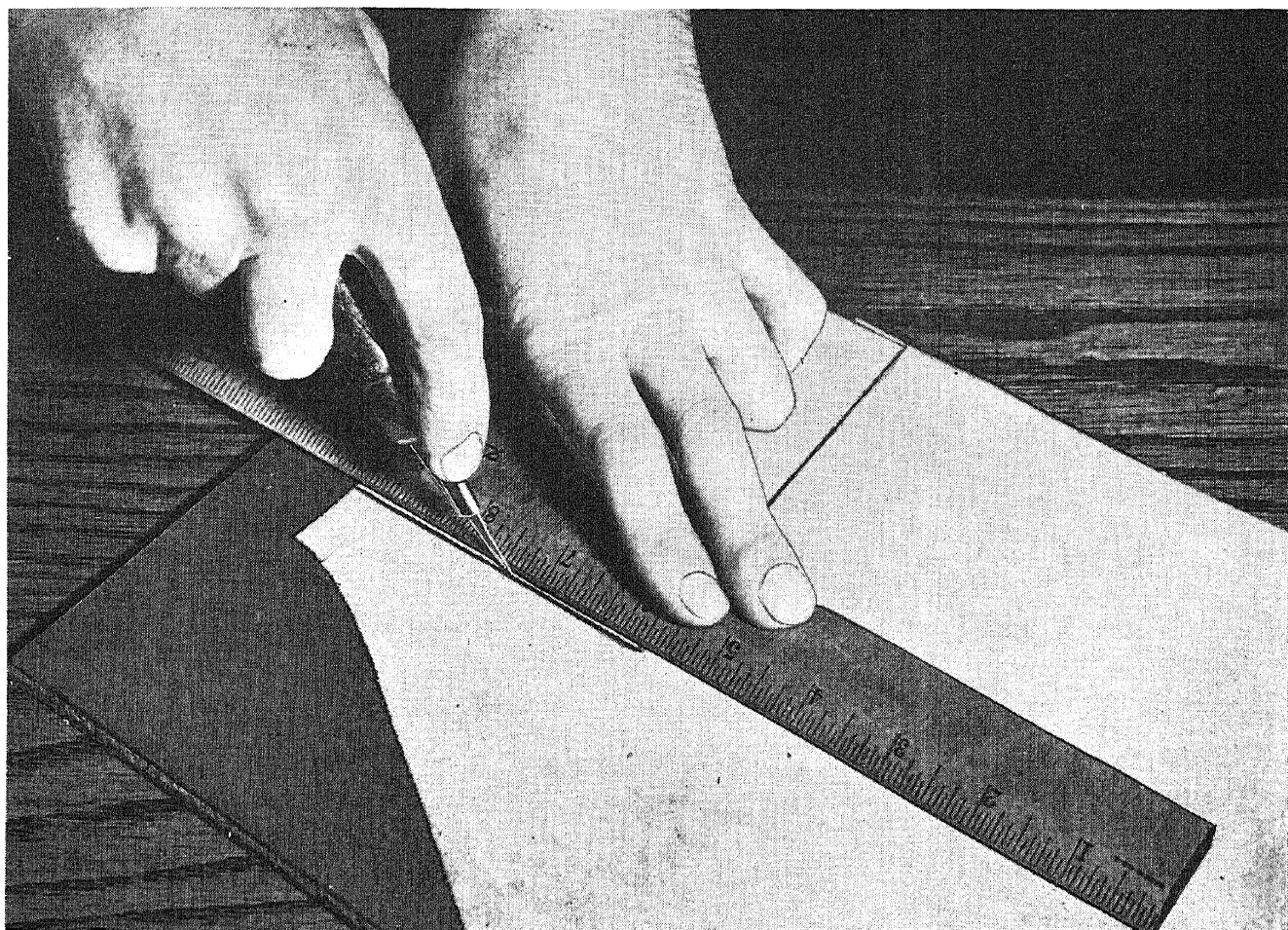
Figure 10. Cutting the Leather.

Tooling Leather

Moisten the leather which has been cut to size. Place the design pattern on the grain side and fasten it in place with paper clips. Spring the clips a bit so they will not be so tight as to mark the moistened leather but will hold the pattern in place.

With the tracer or the pointed end of the modeling tool go over all the lines of the design. Loosen a clip and lift the pattern after making the first line to see if you are making a clear impression on the leather. Before removing the pattern lift it again to be sure that no part of the design has been missed. After removing pattern deepen all lines with the pointed end of the modeling tool. In some designs this will be all the tooling necessary.

This **line tooling** or the making of lines is the simplest form of decoration. It is done with the pointed end of the modeling tool. Hold the tool so that the handle makes an angle of 45° with the leather. Use a ruler as a guide for tooling long straight lines. The tooling must be done on a smooth flat, hard surface which will not absorb the moisture from the leather. An old piece of marble slab, a piece of plate glass, or a piece of heavy linoleum will serve the purpose.

A different method of bringing out a design is by outlining it with a broad **bevel.** This is done by tooling around the outside of the design traced on the leather with the broad end of the modeling tool. The tool is held at such an angle that the leather is pressed down deepest alongside the design.

Designs are often accented by **flat modeling.** This means pressing down the background of the design with the broad end

of the modeling tool. Press down the leather immediately surrounding the design first and gradually work out to the border. Move the tool away from the design using a small circular motion. When necessary take strokes straight away from the design. Continue tooling until the background is evenly pressed down to the desired depth and does not show tool marks. To have a neat edge where the design meets the background, tip the tool slightly as you press around the design. All work that is to be flat modeled must have a border so there will be a place to end the pressed-down background.

Stippling is the making of small dents on all or part of the background leaving the design standing in relief. It may be done by marking the moistened leather with the pointed end of the modeling tool as shown in Figure 25 on page 59. Larger dents may be made, if desired, by using a nail which has had its point filed round and polished smooth with emery paper. The nail may be tapped lightly with a mallet to give a deeper impression. Be
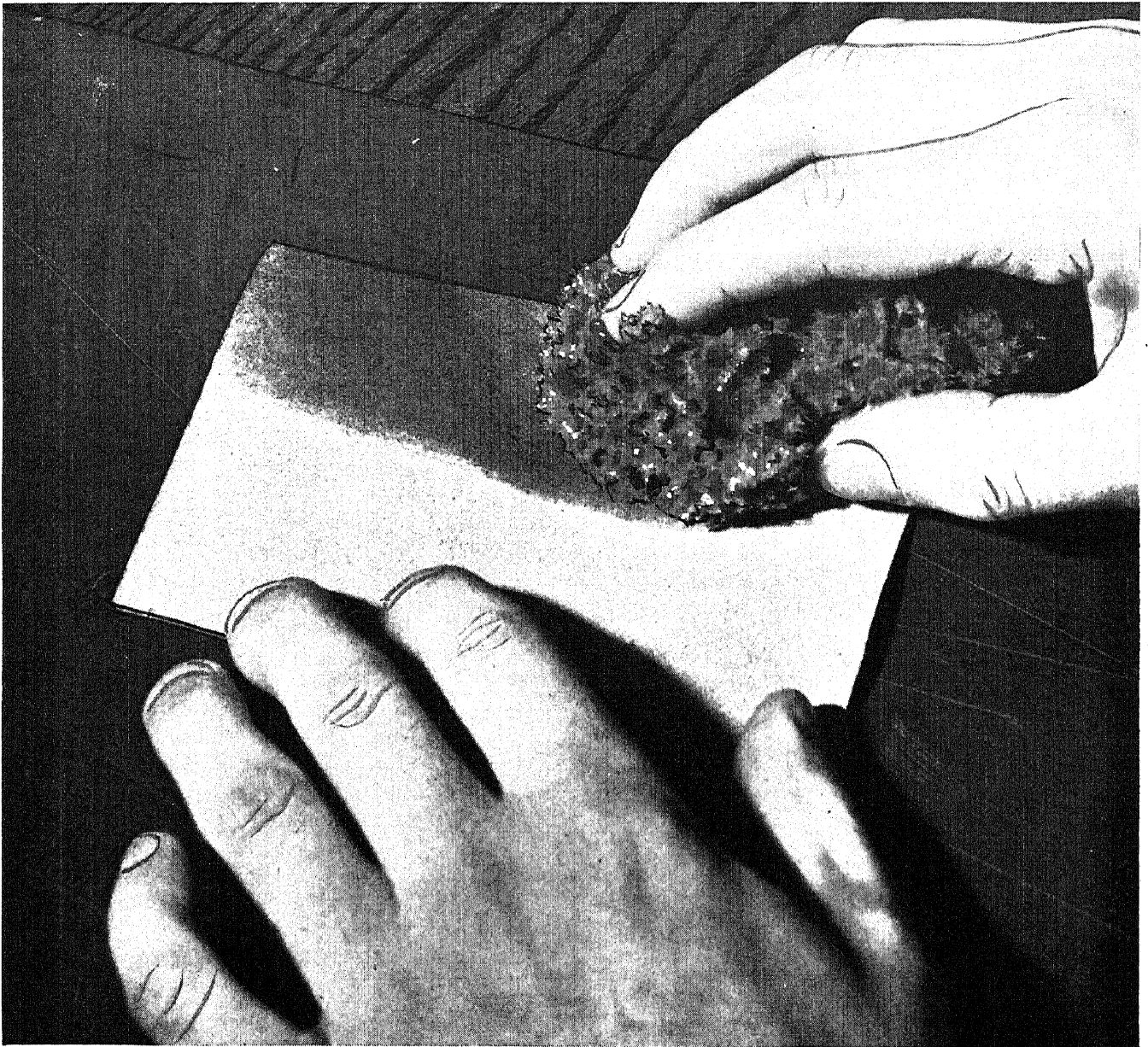
Figure 11. Moistening the Leather.
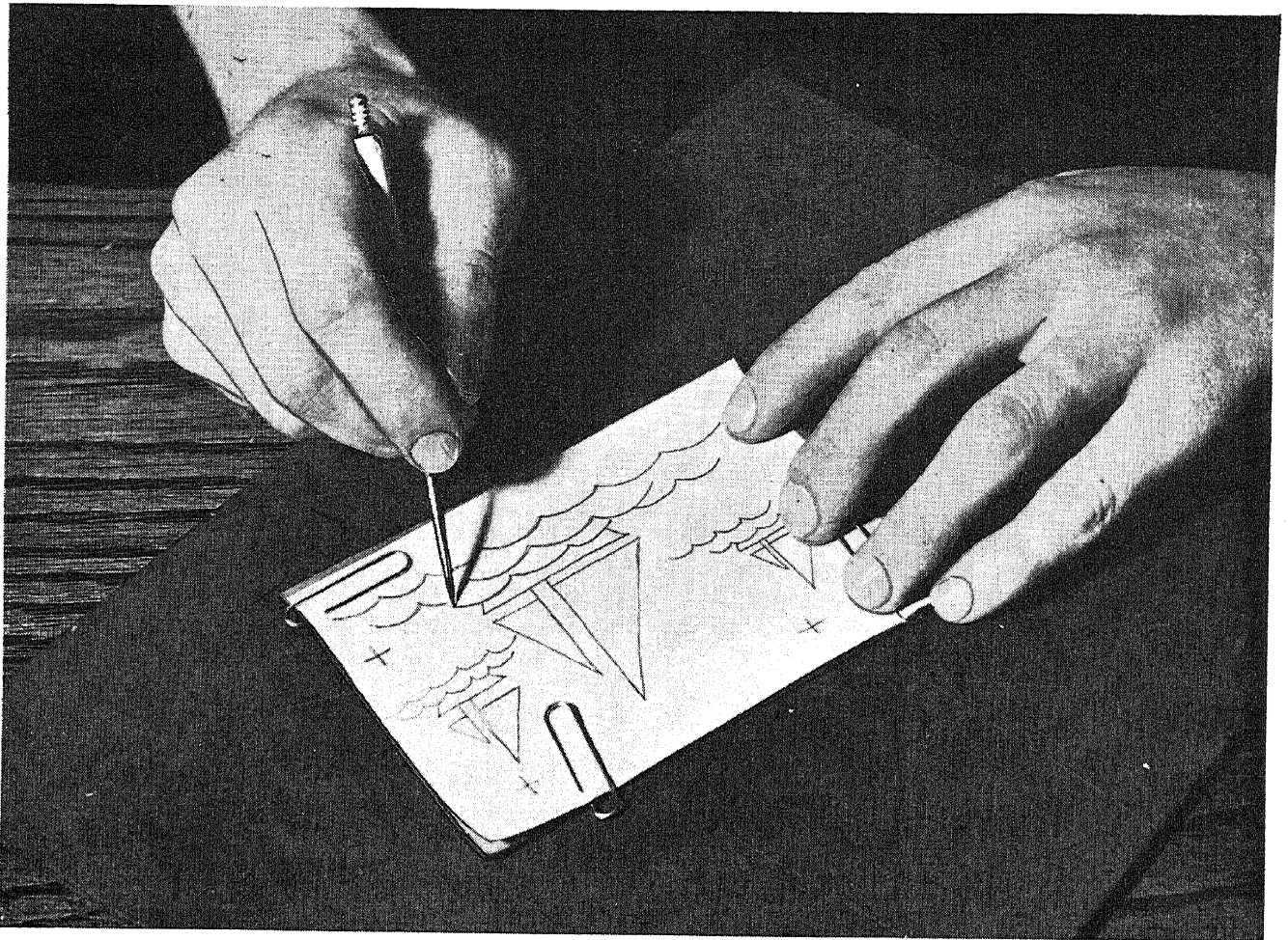
Figure 12. Tracing Over the Design Pattern.

careful not to tap so hard as to break the surface of the leather, but use enough pressure to make clear dents on the leather. When the stippling is finished the surface should have an even appearance.

Embossing or **repousse** is the method of raising the design by working from the back side of the leather.

After the design has been traced on the leather, go over the lines with the pointed end of the modeler, pressing them deep enough to be visible on the back side of the leather. Then hold the leather with the left hand so that the part to be embossed extends over the edge of the table; have the grain side up. Spread the index and third fingers so that the part of the leather you are going to work will be between them. Press the leather up from below with the broad end of the modeling tool. After being placed in the correct po-

sition, the movement of the tool as it raises the leather may be watched from above. Examine the grain side frequently to see that none of the lines are becoming faint; if they are, go over them again with the pointed end of the modeling tool.

Another method is sometimes used for embossing. Place the leather over your hand with the flesh side up so that the part to be tooled will rest over your palm. Then with the flat spoon-end of the modeler, press that part of the leather which is to be raised down into your hand. Use the lines which show through the leather as a guide.

If the article has no lining, care must be taken not to raise the leather too high because it will not stand up long. If a lining is used the design may be raised as much as desired and the raised parts filled with glue and sawdust, plastic wood, or

LEATHER TOOLING

Make pencil sketch.	Trace design with tool.
Dampen leather on back.	Retrace pattern lines.

Line tooling	Beveling
Flat tooling	Embossing or Repoussé
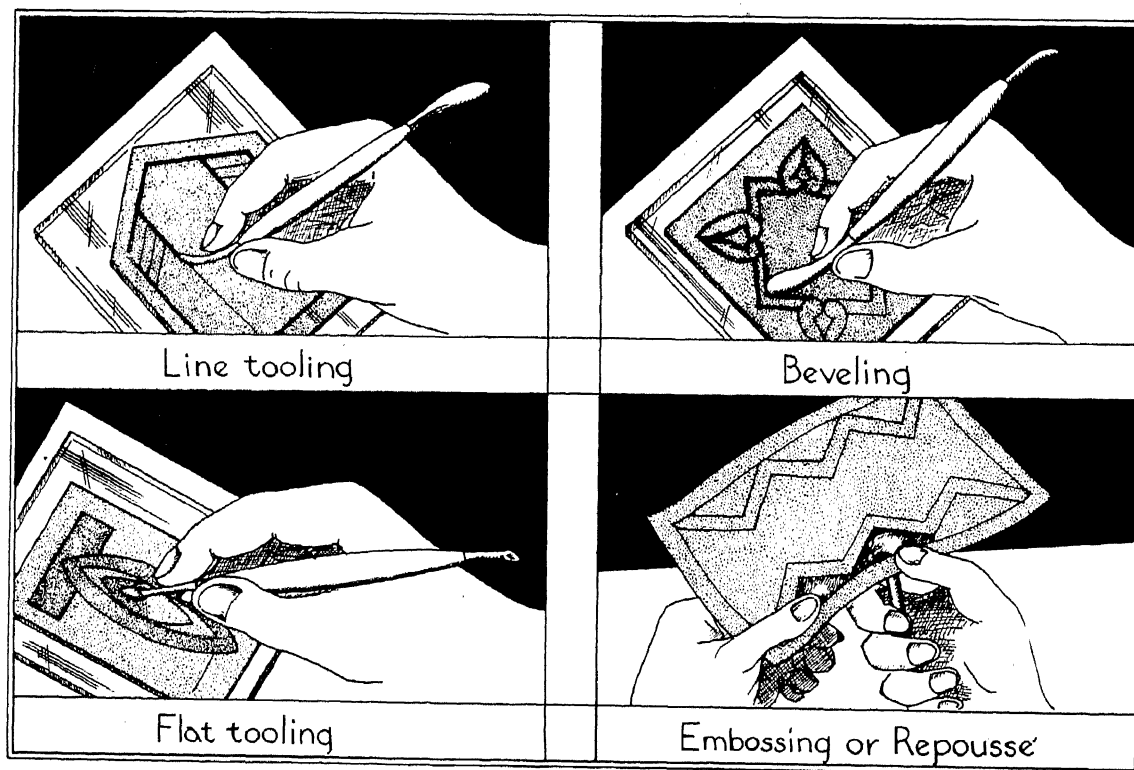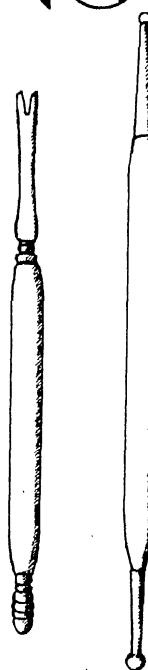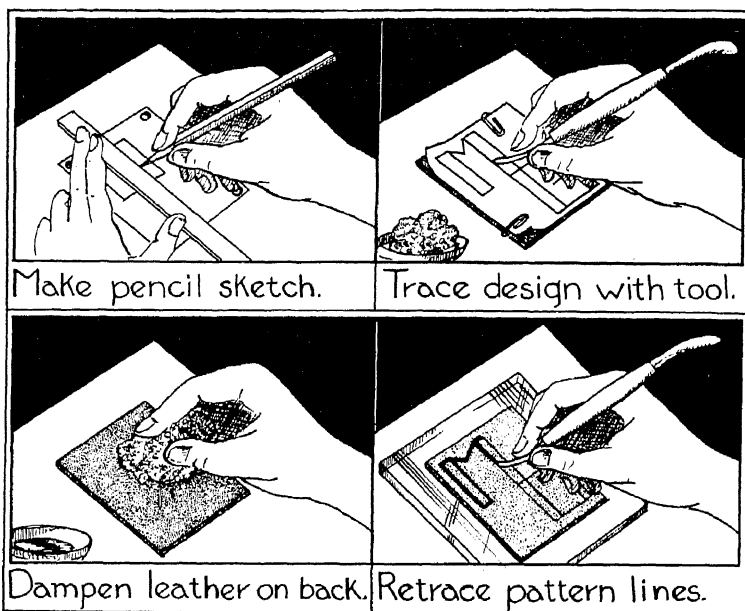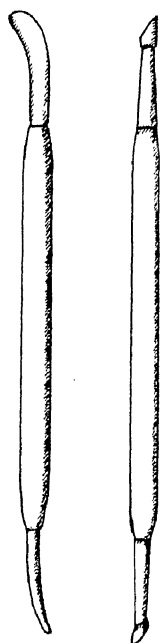
Plate 3. Leather Tooling.
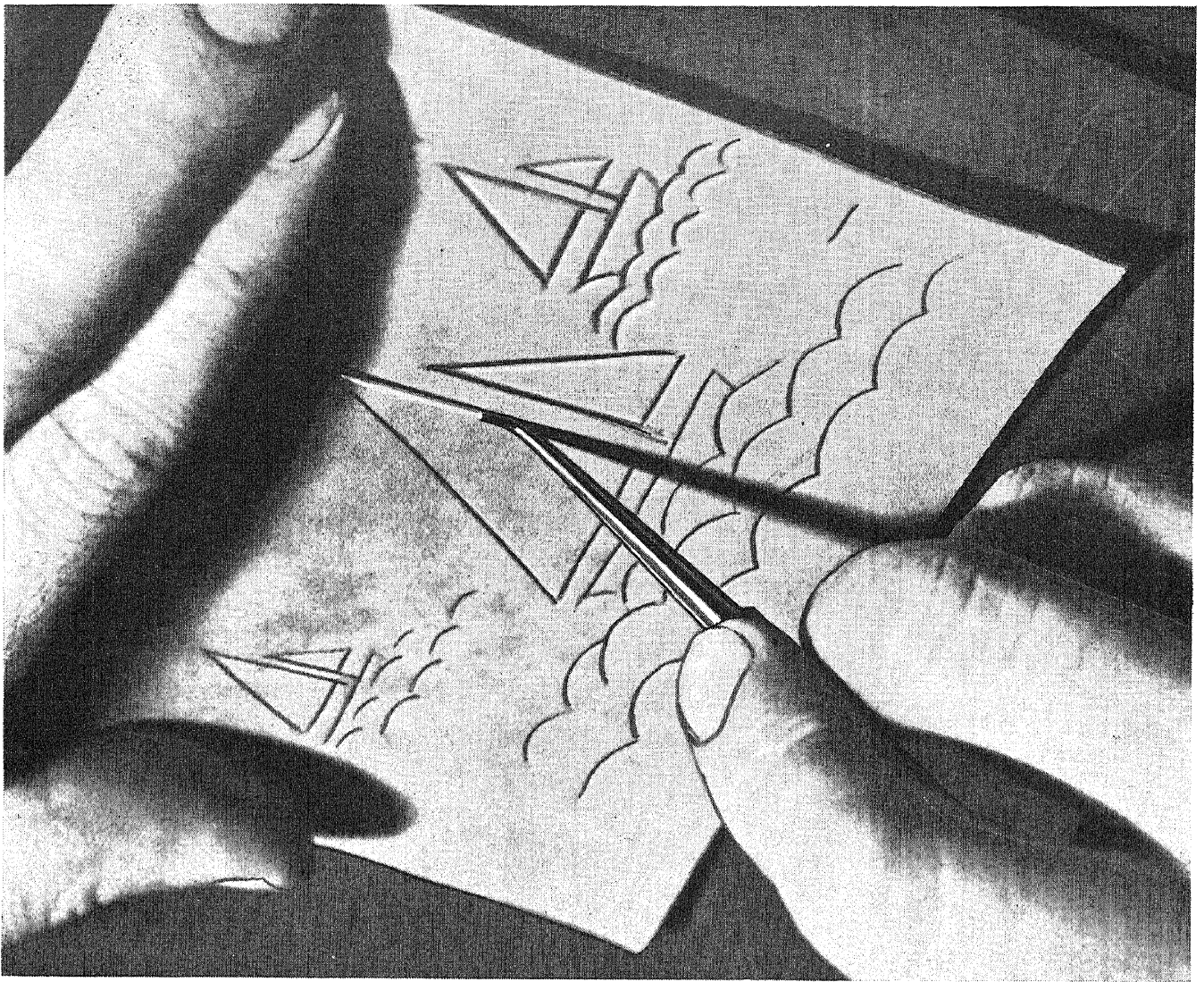
Figure 13.   Line Tooling the Design.

some filling to prevent them from falling. Fine details may be modeled on the raised and filled portions while the leather is still damp.

Stamping is one of the simpler ways to decorate leather. The leather is moistened as for tooling, and is placed on a wooden block or linoleum. The stamping tool is then held in the correct position on the leather and tapped lightly with a mallet. Be sure to hold the stamping tool vertically so that the impression on the leather will be even.

It is extremely important in all stamping of leather to have the tool in the correct location before tapping because any variation will be noticeable and once an impression is made on the leather it can-

not be removed.

Do not tap too hard with the mallet or the tool will stamp a hole in the leather or break the surface. Practice stamping on a piece of scrap leather in order to judge the force of the blow needed to make a good impression. It is best for beginners to make a pattern of the complete design with all the figures to be stamped drawn in detail and to trace the locations for stamping on the moistened leather by using a small dot to indicate the position of the stamp.

Sometimes stamping tools are placed in their correct position on the pattern which is attached to the leather and tapped lightly to leave a faint impression on the leather. The pattern is then re-
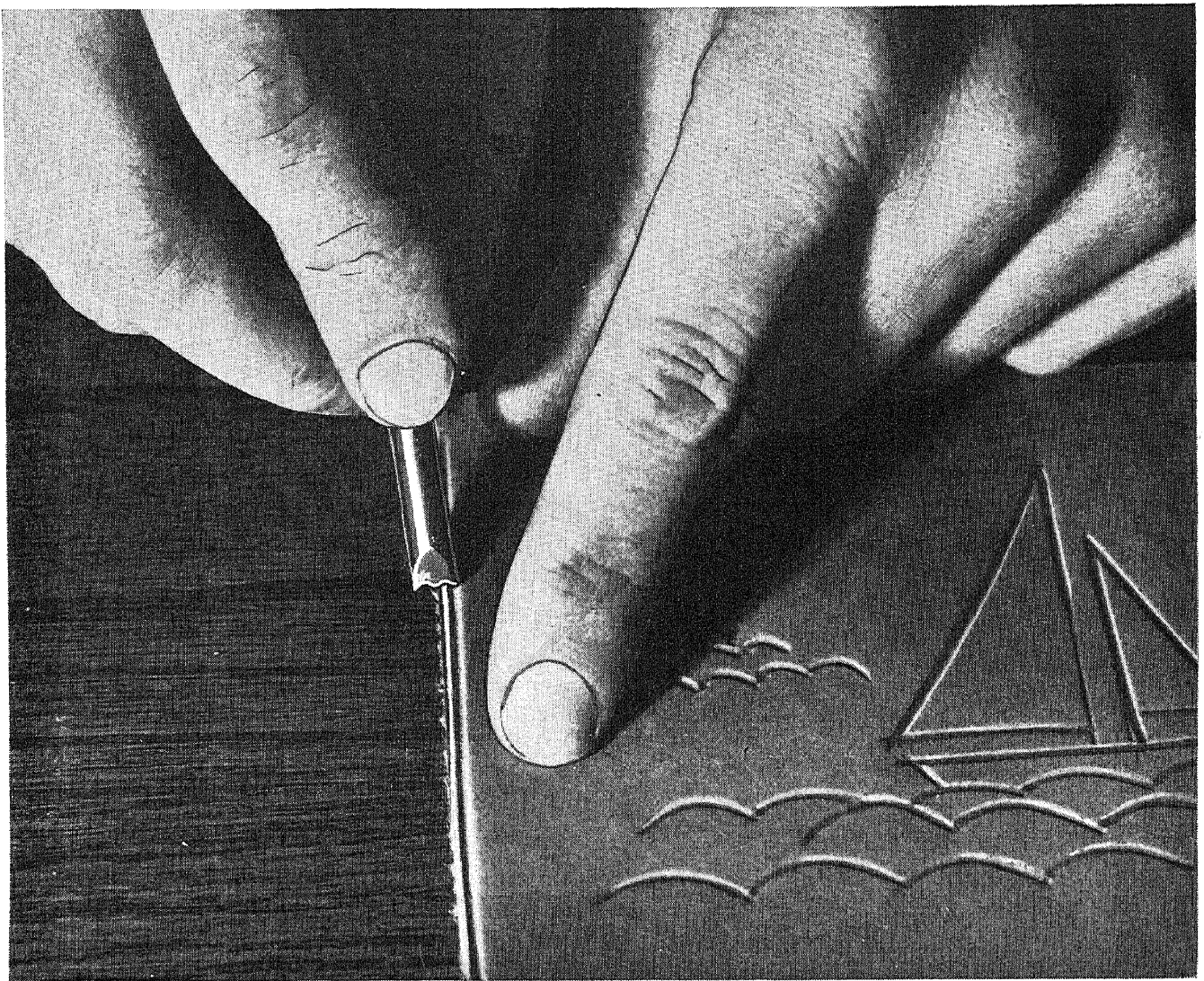
Figure 14. Creasing the Edge With the Creasing Tool.

moved and the stamping tools are again applied to the leather to deepen the designs. This method of first using the tools on the paper pattern and then repeating with the pattern removed is known as **blind tooling.**

Decorating Leather

Cutout designs are often used by leather workers. The punched design is made of a number of small holes cut from the leather with a spring or drive punch. These holes should be planned to form a pleasing pattern. Large cutout areas are removed by placing the leather on the wood block or linoleum and cutting along the outlines of the sections to be removed. This cutting may be done with a sharp knife or razor blade. Be sure to cut through the leather in one stroke.

If the leather is thin and has a tendency to stretch, cut the leather slightly oversize and fasten it to a cutting board with thumb tacks before attempting any cutout work. The designs for this type of decoration must be planned on paper first and a full-size pattern made. Do the cutouts on the paper. This will give a general idea how the finished piece will look if that design is used and changes can easily be made if the arrangement is not suitable. The paper pattern with cutouts made on it is fastened to the leather and the parts to be cut from the leather are marked.

Underlay decoration consists of cutout
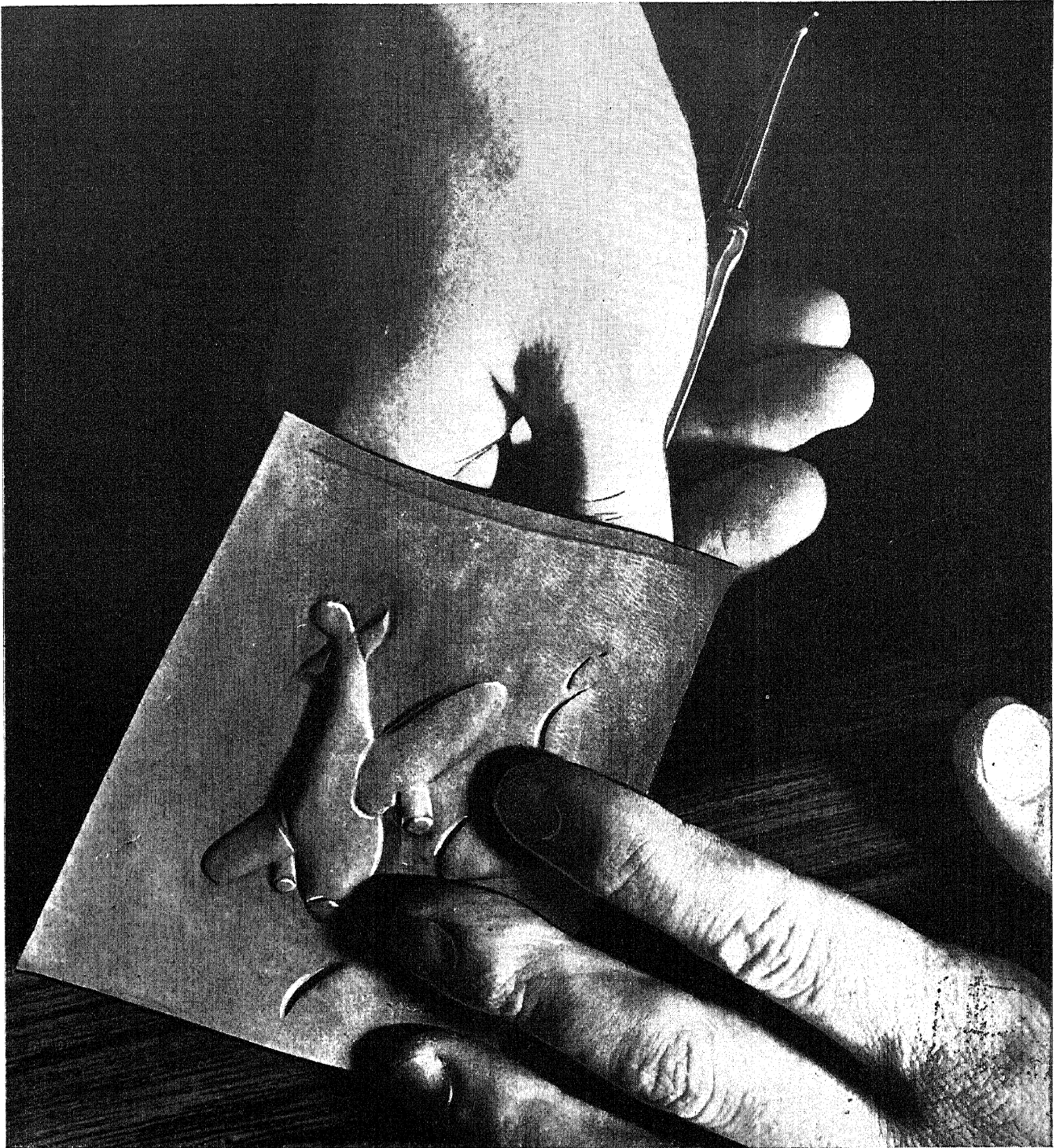
Figure 15. Using the Modeling Tool for Repousse.

designs under which a contrasting piece of leather or silk has been cemented or glued. Soft leathers such as sheepskin are generally used for cutout work. It is not necessary to use heavy leather for the underlay as there is no strain.

After the design has been cut out, ap-ply rubber or vegetable cement to the flesh side. Then place the underlay material face down on the leather and press it smooth and tight over the whole surface. Turn the work over and scrape off any cement which might have been forced through the edges of the cutout sections.

Cushions, lamp shades, table mats, and similar articles are well suited for this type of decoration.

Applique or overlay decoration for leather is similar to that used in needlework. It is suitable for larger articles such as cushion covers and table runners. The design should be simple but bold. On heavier leather it is best to glue the pieces in place. With thinner and softer leather the pieces may be sewn in place with colored wool or floss, using such embroidery stitches as the blanket, chain, or outline.

In applique decoration first plan the design and color scheme on paper. Then trace the design on the piece of leather to be used as a background. Next trace the outline of the separate sections on the leather to be used for the overlay design. Various colors may be used for these pieces if combined in a harmonious manner. The article is completed by attaching the pieces in the proper place with glue or stitching.

Beading is often a suitable decoration, particularly for Indian craft articles made with soft leather. Opaque glass beads are generally used although wooden beads are suitable for some work. A special beading needle is used with the glass beads, an ordinary sewing needle may be used for the wooden beads.

The design and color scheme must first be planned on paper; then trace the design on the leather. Sew the beads in place using a strong waxed thread. Consult the color scheme prepared as the work progresses to be sure to get the proper colored beads in the correct places. Four or five beads may be threaded and sewn in place at one time if they are to be in a straight line and will not get much wear or usage. Beads should always be attached singly when making curves. Beads on moccasins are sewn on singly because they are subject to considerable wear. On moccasins the beads must be attached before the moccasins are sewed together.

Sandpaper patterns provide an interesting and easy method of decorating leather. Sandpaper when pressed on dampened leather will give a stippled effect. The coarser the sandpaper used, the deeper the marks in the leather will be.

Draw the design on the back side of a piece of sandpaper. Cut out with a knife the parts that are not to be stippled. Moisten the leather. Place the sandpaper pattern, rough side down, on the smooth surface of the leather. Pressure is applied to the sandpaper so that it will make an impression on the leather.

Put the leather and sandpaper pattern between two smooth pieces of wood slightly larger than the leather, and tighten in a vise or with hand clamps. Be sure that the pressure is the same all over the leather or the stippling made by the sandpaper will be heavy in some spots and light in others. The article may be taken from between the wood as soon as you think you have put enough pressure on the leather to have a good impression made by the sandpaper. Tooling a line along the unstippled edges will improve the appearance of the design.

Coloring and **painting** leather are effective means of decoration. Dyes, oil paints, colored waterproof inks, flexible leather enamel, and colored indelible pencils may be used. Dyes should be used on natural leather because they are transparent and will not show up well on colored leather.

When dyes are used they are applied with a camel's-hair brush over small areas and with a sponge or pad of cloth over large areas. The surface of the leather must be dampened slightly in order to prevent spotting, streaking, and spreading. Apply a thin coat of dye the first time. Add a second coat if necessary after the first coat has dried and shows the true color. It is always better to get the desired color by using successive coats than to try to make the correct color with one coat.

The beginner in leatherwork should try

coloring on scrap pieces of leather before attempting to color an article on which hours of careful work may have been spent.

When artists' oil paint is used as a stain it should be thinned to a watery consistency. Oil paint should be used for coloring an entire surface. If it is to be used for separate units of a design the oil would spread through the leather, making a dark border around the painted part.

Oil stain is applied to the dry leather. With a soft brush or a wad of soft cloth spread the stain over all the leather as quickly and as evenly as possible. Wipe off the excess liquid immediately with a soft cloth.

When dyeing or staining entire surfaces the leather should be laid on a pad of newspapers. This will prevent soiling the worktable and the paper will absorb any coloring that runs over the edges of the leather. When separate parts of a design are being colored, cover the surrounding areas with paper. This precaution protects the uncolored leather.

Colored waterproof inks, because they are easy to use and often give better results than dye, are useful to the young leather craftsman. For small areas, either design or background, apply the ink quickly to avoid streaks. Use a small camel's-hair brush. Successive coats may be used to obtain darker shades. For coloring an entire surface, use a small sponge or a wad of soft cloth. Go over the entire surface quickly to avoid streaking. On a natural leather the coloring will soak into the pores, bringing out the natural beauty of the grain. These inks may be diluted with pure water for lighter shades or may be used full strength. Various standard colored inks may be mixed to obtain other shades.

Leather may be colored or painted to give emphasis to a tooled design, or designs may be painted on the leather itself. White and light-colored suede leathers make suitable backgrounds for the latter type of decoration. A special flexible leather enamel is made for painting on leather. This is put on dry leather. Apply it with an ordinary paint brush suitable in size to the area to be enameled. One coat of enamel usually is sufficient. The brush marks will level out a few moments after the enamel is applied. Sometimes it is necessary to mellow or tone down the enameled portions. This is done by rubbing some darker pigment over the enameled portion after it has dried sufficiently.

Colored indelible pencils may be used to color tooled lines while the leather is still damp or to give line effects in designs. They are not suitable for coloring solid areas because the pencil strokes show.

Cleaning and Polishing Leather

Leather articles must be cleaned before any attempt is made to color them. Sponge off the leather with benzine or methylated spirits. Do not try to clean only the spots that appear soiled, but apply the cleaning fluid over the entire surface quickly and give special care to soiled parts. Use a clean soft white cloth which has been moistened with the cleaning fluid.

Saddle soap is excellent for cleaning and polishing leather. Apply the soap with a damp sponge or a soft damp cloth. When dry, rub the leather with a clean soft cloth to remove the excess soap and to polish the leather. The use of saddle soap on leather articles at least once a year will help greatly to keep them in good condition.

Leather may be polished with leather polishing wax, banana oil, shoe cream, or natural wax. Apply the polish in a thin coat and rub gently with a clean soft cloth. A thin coat of polish and gentle rubbing will prevent any colored design from blurring.

For dark leathers, India ink of the same shade as the leather may be used
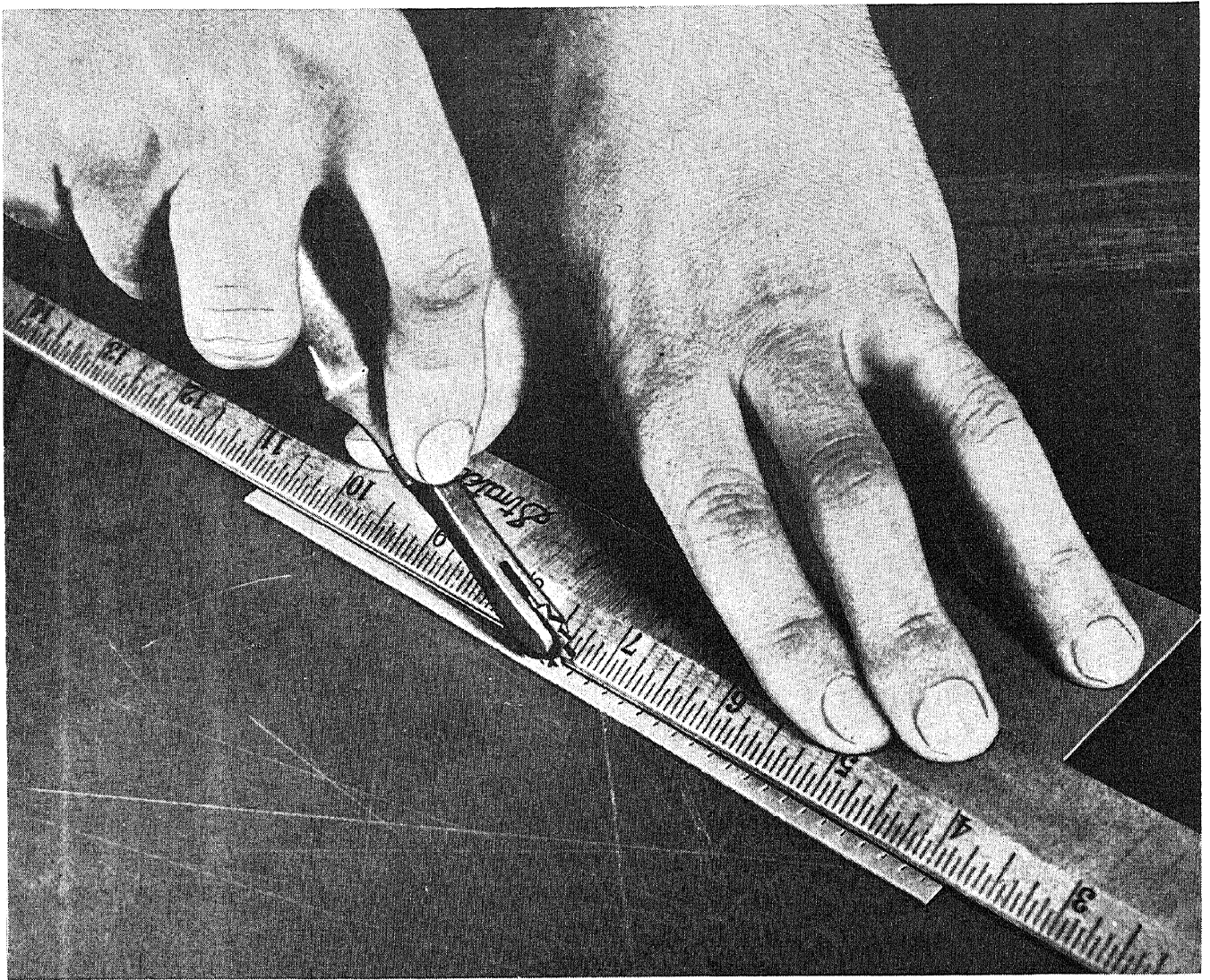
Figure 16. Marking Holes for Lacing.

for a polish instead of wax. Wax is apt to streak dark leathers.

Lining Leather Articles

It is sometimes necessary to line leather articles, especially if the flesh side of the leather is rough in texture. Thin leather, skiver, or cloth may be used. The lining should be slightly larger than the article so that it may be trimmed to the correct size after being cemented in place.

Place the leather and the lining flat on the table with the surfaces to be cemented facing upward. With a fairly stiff brush, apply a coating of rubber cement to both surfaces. When the cement gets dull looking, place the lining leather carefully in place over the other piece. Using the side

of your hand or the back of a ruler, start near the center and work outward, smoothing down the lining. Work out any wrinkles or air bubbles that appear. Work rapidly to finish before the cement has a chance to dry. Any edges of the lining extending over the edge of the other leather should be trimmed with a sharp knife or scissors.

In some articles the lining needs to be cemented only to the outside edges of the leather, and at the fold if there is one. A quarter-inch strip is sufficient. Where the article does have a fold apply the strip of cement as before, but stick the lining to the pieces together at the fold first, then work outward.

In order to give a neat appearance to

the finished article it is sometimes necessary to skive the edges before attaching the lining. This is especially true if suede is used for lining, as in a notebook. The fold may be made thinner by sanding the flesh side of the leather while holding it over the edge of the table.

Lacings on Leather Articles

Lacings are used on leather articles for several purposes—to attach two pieces of leather, to strengthen the edge, and to give an attractive finish. Lacings vary in width and thickness. In choosing them, consider the size and the type of the object as well as the kind and color of the leather.

Holes for 3/32″ lacing are usually placed an eighth of an inch from the edge of the leather and the same distance apart as the width of the lace. The hole should not be larger than the size of the lace. Mark the location for each hole with a pencil or sharp-pointed instrument. A quick method of marking is to use the prongs of a fork or to use a special hole spacing wheel. The tines of an old fork may be adjusted so that they are the correct distance apart.

If possible, start at a corner in marking the holes. Sometimes it is necessary to change the spacing of the last few holes along an edge so that the last one will be in its proper corner position. Changing of the spacing of the last few holes may also be necessary when nearing the starting point after marking completely around the article. The last hole must meet properly with the first hole; slight variations in the spacing of the last three or four holes will not be noticeable.
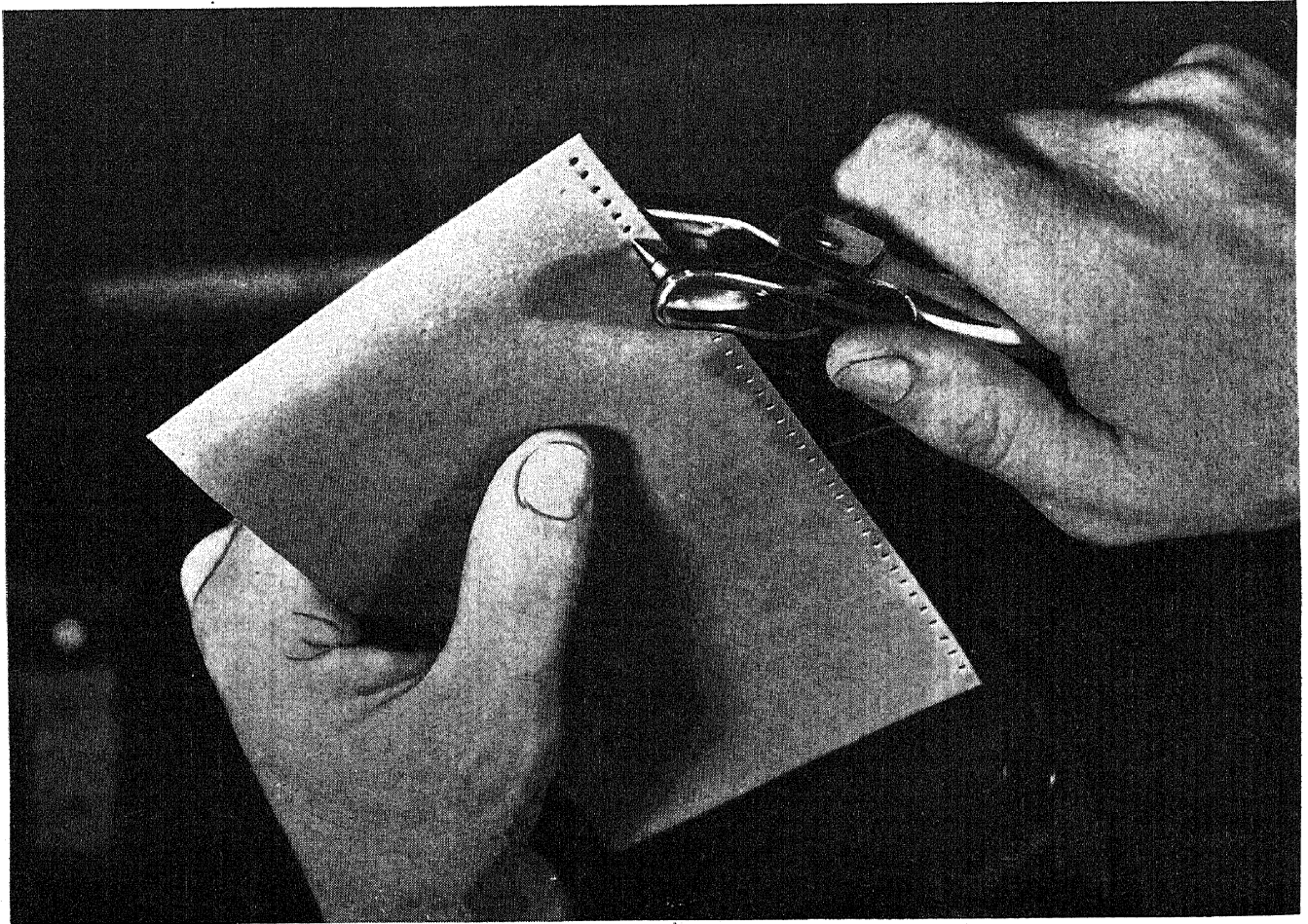
Figure 17. Punching Holes With Spring Punch.
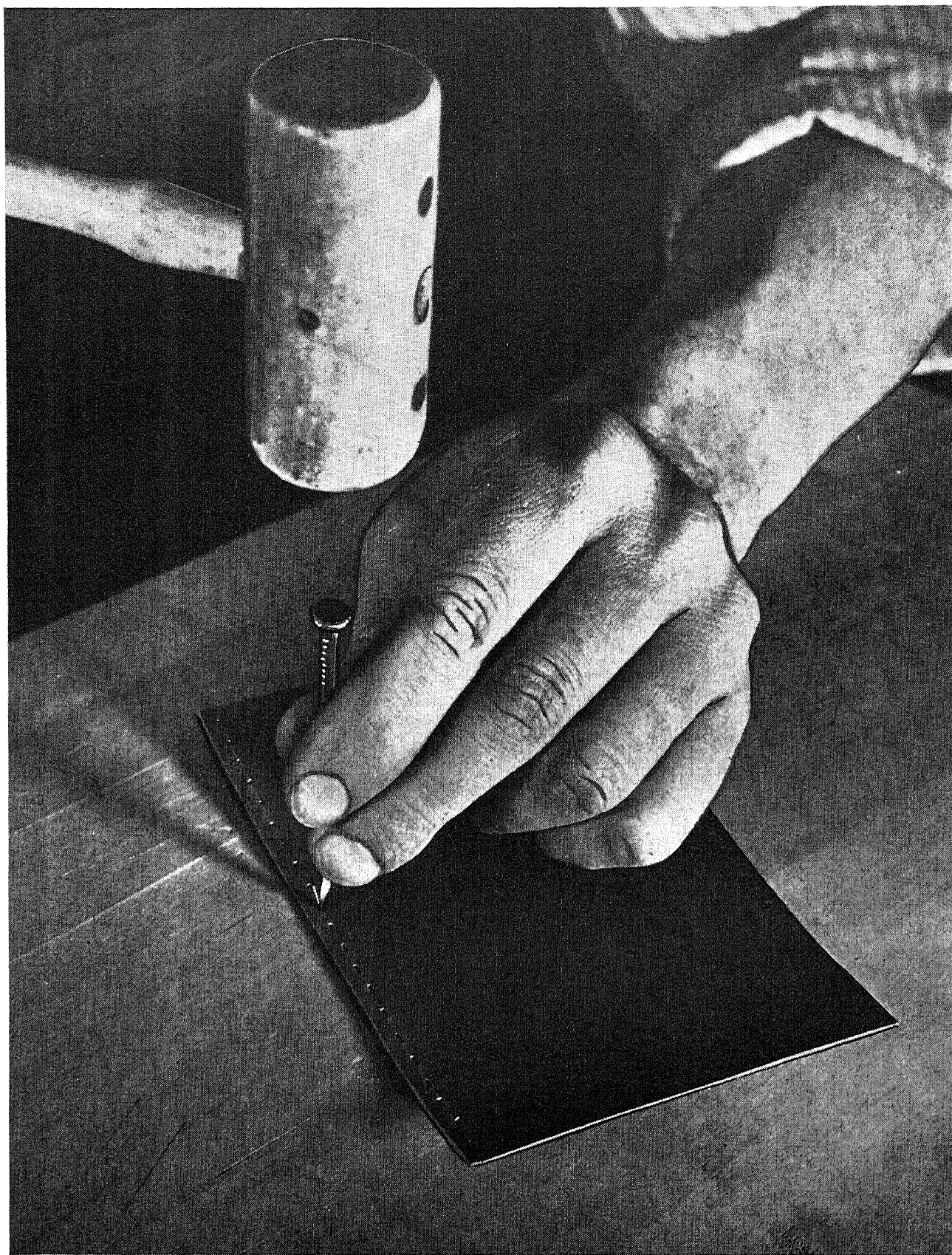
Figure 18. Punching With a Sharpened Nail.

Punch the holes with a spring punch or drive punch of the correct size. If a drive punch is used, place the leather on the end grain of a wood block used for punch-
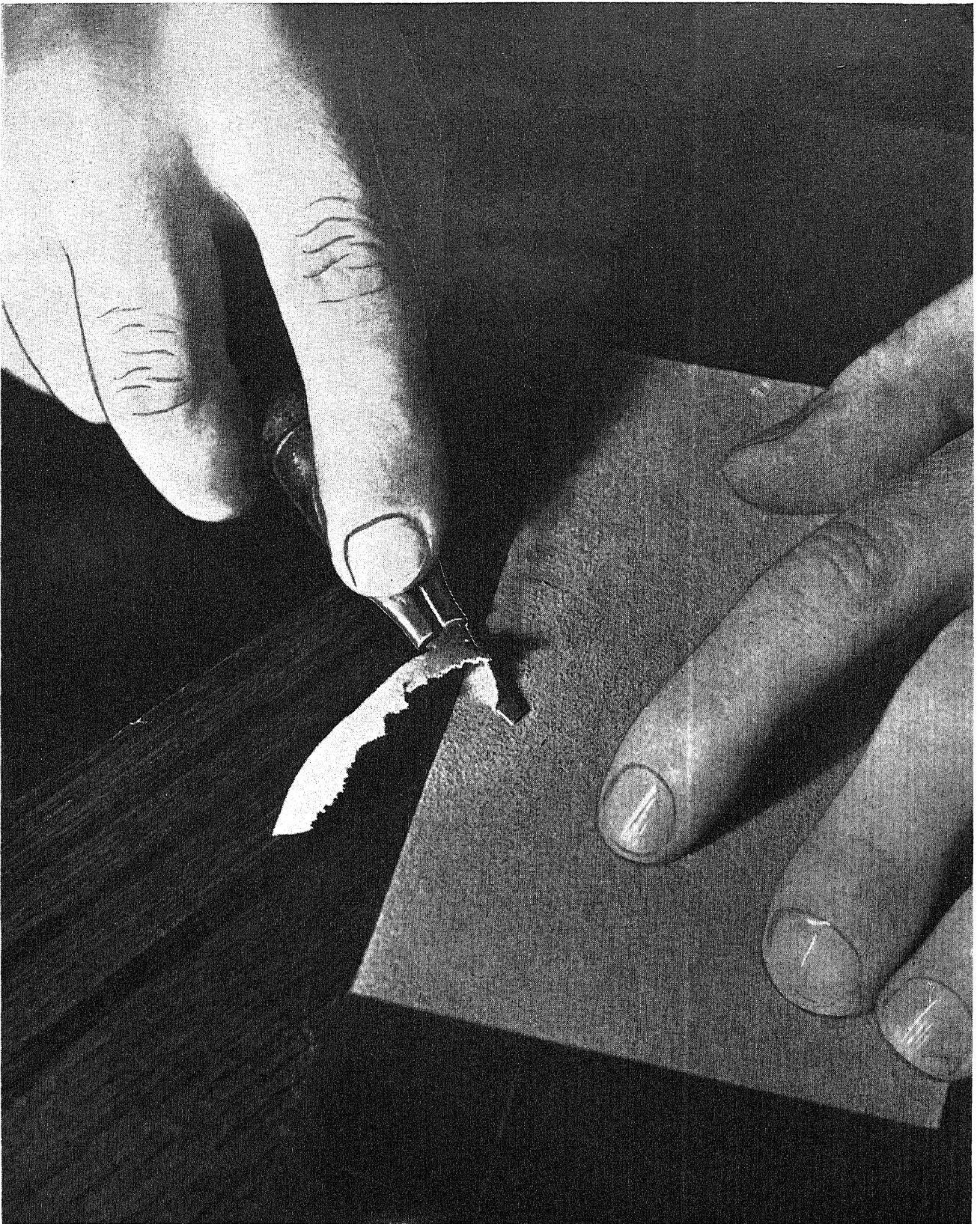
Figure 19. Skiving the Leather.

ing. Slots may be used instead of round holes. These are made with a thonging chisel. Thonging chisels are made that have four prongs. This type can be used
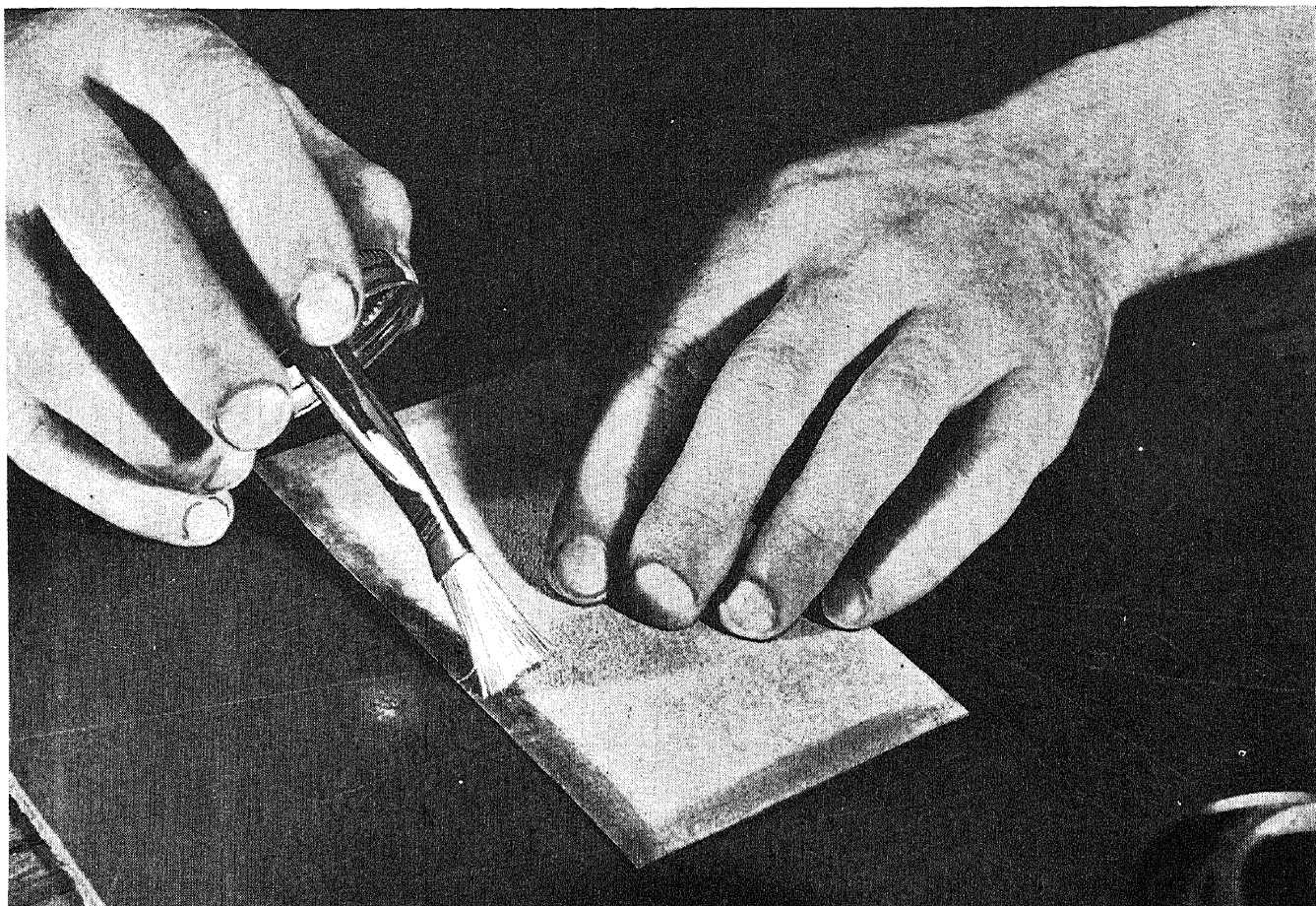
Figure 20. Applying Rubber Cement.

only on straight lines. A thonging chisel that punches one slit at a time must be used for curves.

When two pieces of leather are to be fastened by lacing, it is best to skive the edges to be joined. Then clip or fasten the pieces together with rubber cement along the edges and punch through the two thicknesses at the same time. The rubber cement holds the two pieces together as the holes are being punched. Where an article such as a billfold is folded, the same number of holes are necessary in each piece but the holes in the outer piece of leather have to be slightly farther apart at the fold. This wider spacing is necessary because the outer piece of leather is a little longer to allow for the fold.

A small hole is best suited for Florentine lacing to obtain a neat and attractive appearance.

Lacing should be started at some inconspicuous point, and one where, if possible, there is more than one thickness of leather. This is done so that the start and finish of the lacing may be properly hidden. While lacing, hold the front side toward you and lace from left to right. The amount of lace needed depends upon the type of stitch used and the distance to be laced. A piece of lacing three feet long is an easy length to handle. When more lace is needed it may be spliced to the attached lacing.

Splicing Lacing

To splice lacing, first skive the two ends to be joined, one on the grain and the other on the flesh side. Make the bevel at least three-eighths of an inch long. Apply rubber cement to the skived ends. Allow the cement to dry long enough to get sticky and then press the ends together.

Hold tightly between your thumb and forefinger for a few minutes until the cement sets. Handle the joined part carefully until it has been passed or laced in.

The working end of a piece of lace must be cut to a point so that it will pass through the holes easily. A little glue on this working end will stiffen it and make it easier to handle. Skive the other end of the lace and apply a coat of rubber cement to it. This end is hidden between the two layers of leather and held tightly in place by the first few stitches. As you work, tighten each stitch by pulling gently on the lace. Grasp it close to the leather when you pull to prevent the lace from breaking. Tighten the stitches uniformly but not so tight as to stretch and wrinkle the leather.

Stitches

The Running Stitch

The in-and-out stitch, also called the running stitch, is the simplest stitch and is made by putting the lace up through one hole and down through the next. It is used for lacing two pieces of leather together without going around the edge as in the whip stitch. It is also used for attaching zippers and pockets. The in-and-out stitch requires about one and one-half times as much lace as the distance to be laced. Start this type of lacing in a corner or end hole. Holding the leather with the finished side toward you, put about one inch of the lace through the first hole from the front. Put the other end of the lace through the second hole from the front. Bring the same end through the next hole from the back. Slip the short end of the lace under the first loop on the back and tighten the loop to hold the short end securely. At the finish the lace should be pulled back tightly under the last back loop.

The Whip Stitch

The whip stitch, also called the over-and-over stitch, is used to fasten two pieces of leather together along the edge of an article, or on the edge of a single piece of leather where it is for decoration only. When lacing corners, pass the lace through the corner hole two times to give a neat appearance. The whip stitch requires about three times the amount of lacing as the length of the seam.

The Cross Stitch

The cross stitch is used for ornamental purposes on a single edge of leather and for holding two pieces of leather together. Working from left to right use the whip stitch, skipping every other hole, except the corner holes. When the entire seam has been laced in this way, lace from right to left, using all the holes which have been skipped.

The closed cross stitch is made by not skipping any holes so that there are two stitches in each hole. The cross stitch requires about six times as much lace as the distance to be laced.

The cross lap stitch is especially useful in cylindrical work such as bracelets and neckerchief slides because it tends to keep an even curved surface. The amount of lace needed is about four times the distance to be laced.

The leather to be laced must be lapped. Punch a row of holes in each piece $\frac{1}{4}''$ or more from the edge. There must be an odd number of holes in order to have the stitching finish on the underneath side. Skive the edge of leather that is to be underneath. Place the top edge over the skived edge so that it will just clear the row of holes.

The lacing is done with two separate pieces of lace. Different colors are often needed to give a more attractive appearance. On the plate of lacings, light and dark colored laces are used to simplify the explanation.

Pull both ends of the light-colored lace through the first pair of holes from the back. Pull both ends of the dark lace through the second pair of holes from the back. Cross over the light lace and pull them through the second hole where

STANDARD STYLES
OF LEATHER LACING
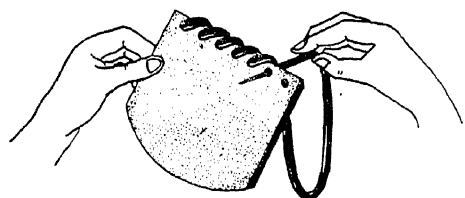
Lacing with needle or stiffened end.
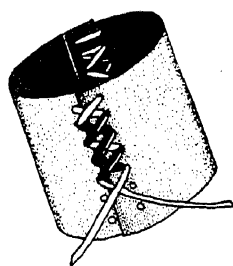
Cross lap stitch.

Cross stitch.

Running stitch.

Florentine stitch.
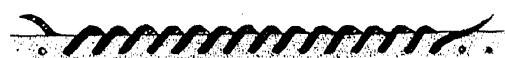
Whip stitch.

Butt stitch — front and back.

Closed cross or double whip stitch.

Buttonhole stitch.

① ② ③ ④ ⑤ ⑥
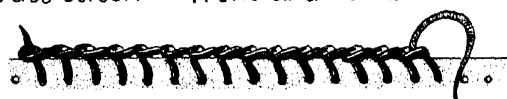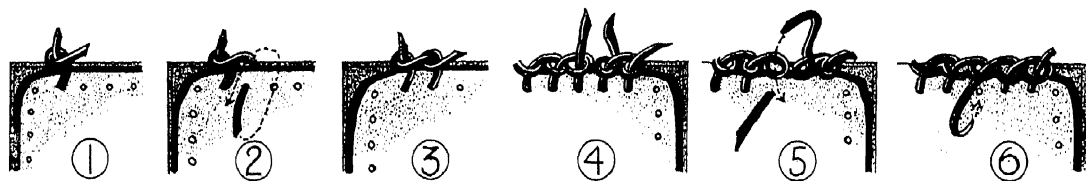
Manner of beginning and ending buttonhole stitch.

Plate 4. Styles of Leather Lacing.

Figure 21. Setting the Cap of a Fastener.

the dark ends are emerging. Next take the dark lace, cross the ends and pull them through the next pair of holes. Cross the light lace in the back and pull the ends to the front through the next holes. Cross the dark lace in the back and pull the ends to the front through the next holes. Continue in this manner
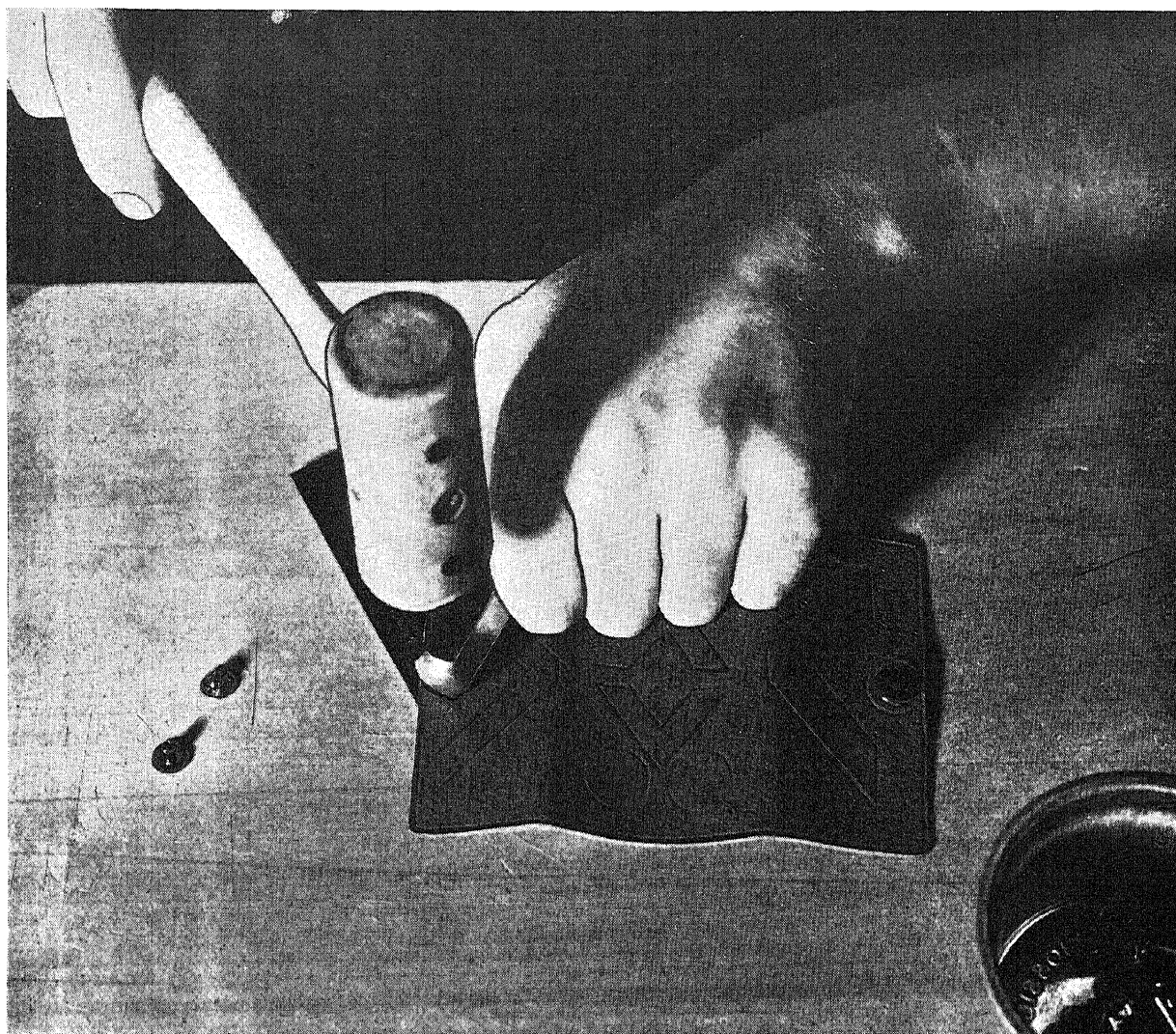
Figure 22. Attaching the Spring and Post.

to the end. Finish lacing by pulling the ends tightly under two or three stitches on the inside and cutting off.

The Buttonhole Stitch

The buttonhole stitch is a decorative knotted edging that wears well and covers the edge of the leather more than any other form of lacing. This stitch requires four to five times the distance to be laced.

The steps in the start and the finish are shown in a series of six sketches at the bottom of the plate on lacing. To start the buttonhole stitch, take one end of the lace and push it through the second hole. Pull it through about one inch and hold it so that it points straight up from the

edge of the article. Take the long end of the lace and wrap it tightly around the standing end of lace, making a loop as shown in plate 4 on page 34. Hold this loop tightly so that it will not slip. Push the lace through the next hole from the back, leaving a small loop. Then pull the lace through the loop, as arrow shows in step 2. Pull the loop tight first, then the lace. Step 3 shows how the first two stitches look when finished.

If the buttonhole stitch is ended properly, any difference in the regularity of the lacing is impossible to see. Pull the short end at the start of the lace out of its loop and put the other end down through this same loop as shown in steps 4 and 5. Push the first end down through

its hole so that it will be between the pieces of leather. Then push the remaining end of lace down through this same hole as shown in step 6. Pull both the ends from the inside so that the lace is tight. Cut the ends off short and the lacing is complete. A bit of rubber cement on the ends of the lacing will help to make the ending strong.

The Butt Stitch

Butt stitching is used when the edges of two pieces of leather are to be butted together as shown on page 34. The amount of lace needed is about twice the distance to be laced. Start and finish the stitches as shown.

Attaching Metal Accessories

The tools needed for attaching snap buttons are a standard set consisting of a small anvil, a machine hammer, and a bodkin. These are shown on page 13. Leather punches and a mallet are also needed. Snap buttons consist of four parts: the cap, the cap eyelet that fits within the cap, the spring, and the post that fits within the spring.

Locate the position for the cap and punch a hole that is slightly smaller than the eyelet. Place the bodkin upright in the eyelet. Force the leather down over the eyelet; the bodkin makes it easy to insert the eyelet. Remove the bodkin and place the leather on the anvil. Place the
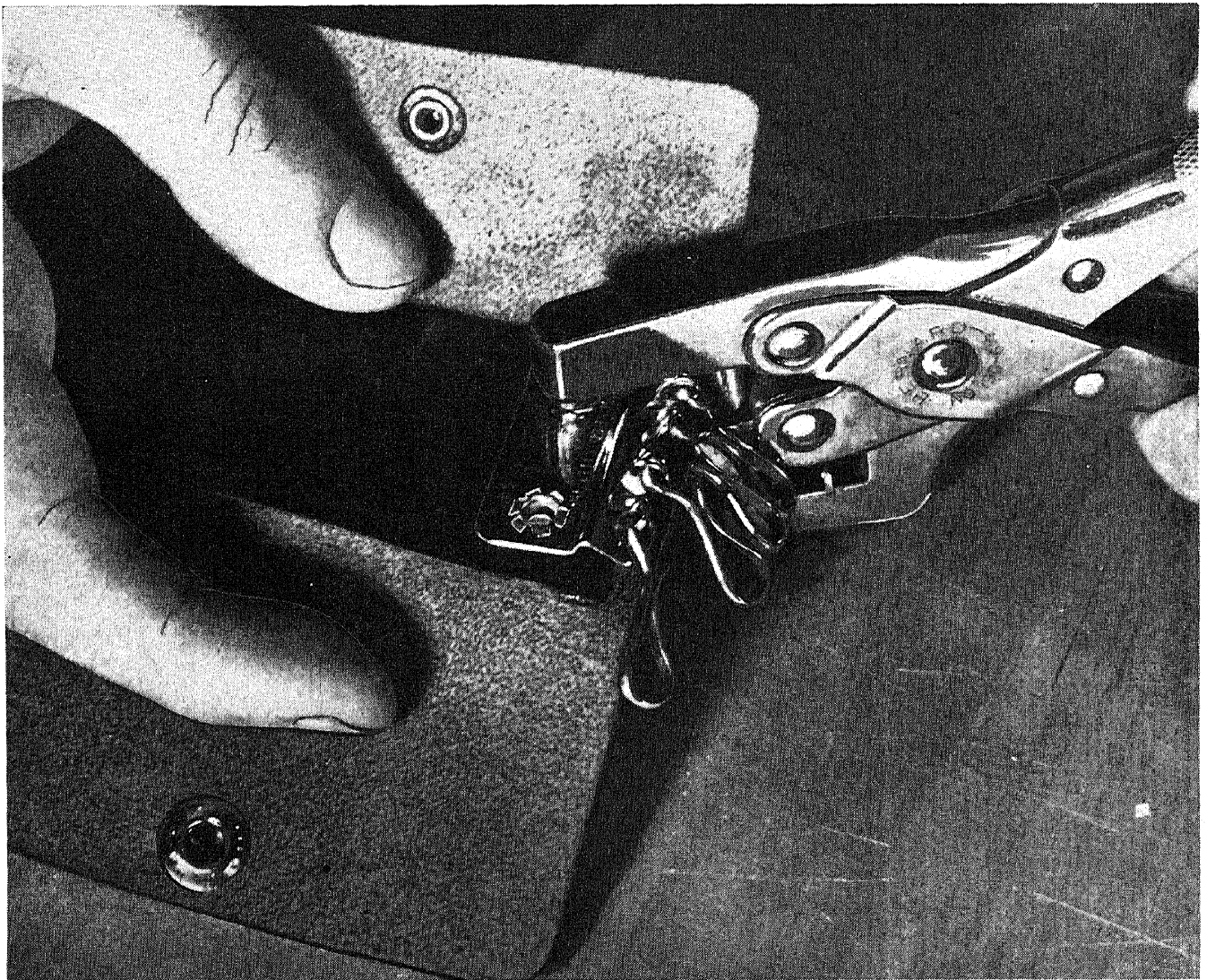
Figure 23. Attaching a Key Plate with Eyelet Punch.

cap on the eyelet. Then set the concave end of the hammer on the cap and strike a sharp blow with the mallet. This will fasten the cap and the eyelet firmly together.

To find the location of the spring, fold the article correctly and press firmly on the cap. The eyelet will leave a faint impression on the leather, the center of which is the location for the spring. Punch a small hole the size of the post at this point. Place the post in the hole from the underside of the leather. Lay the post on the anvil and put the spring over it. Place the machine hammer on the spring so that the spring fits into the proper-sized hole. Strike the hammer a sharp blow with the mallet to attach the spring and post. Test the snap button. If the cap will not close over the spring, squeeze the spring together lightly with the pliers until it fits properly. If the spring is too loose, tap the top of it lightly with the mallet.

Using a Homemade Wooden Anvil

Punch a hole just a little smaller than the size of eyelet for cap. Push the eyelet through the leather from the back. Place the leather on a hard wood or a metal surface. Place the cap over the eyelet.

Hold the dent of your wooden block on the cap and strike the block a sharp blow with a wooden mallet. This blow will join the cap and the eyelet and finish the button end of the snap button.

Next locate the place for the spring, and punch a hole large enough to fit the post. Place the post in the hole from the back. Place the spring over the post. Hold the block so that the drilled hole fits over the spring, then strike the block a sharp blow with a mallet to fasten the spring and post and complete the snap button.

To attach an eyelet, first locate and punch the proper size hole. Insert the eyelet in the hole, being careful to put it through from the side that will be seen in the finished article and place it on the edge of your work board. Place the eyelet setter over the eyelet and strike a sharp blow with the mallet. This will spread the end of the eyelet. Then flatten the spread end with a hammer.

When using an eyelet-setter punch, the eyelet is placed on the anvil of the punch and the eyelet die is forced into the end of the eyelet, spreading it and flattening it when the handles are squeezed together. Figure 23 on page 37 shows an eyelet-setter punch being used to attach a key plate with eyelets.

THINGS TO MAKE

Pen and Pencil Case

A pen and pencil case made from tooling calfskin is useful to the student and makes an excellent gift for a young friend.

The first step is to make a pattern of strong paper, using the dimensions given in plate 5 on page 40. Lay the outline pattern on the leather and mark around it with a pencil or awl. Cut out the leather with a sharp knife, using a ruler as a guide. Before cutting the leather review the directions on pages 17 and 18.

Plan the design you choose to use on tracing paper, making allowance for the lacing and the snap buttons. Moisten the leather and place it on a smooth, hard surface. Fasten the **design** pattern to the leather and trace the design on the leather. Remove the pattern and complete the tooling. Tool a line on the flesh side of the leather where the folds are; this will make better folds.

When the leather is dry, skive the end parts that fit together. Cement these edges together. Mark and then punch the holes for lacing. Use the whip stitch described on page 33 for the lacing. When the lacing is completed, flatten it by tapping lightly with the mallet.

Comb Case

The comb case is a useful article that is simple to make and requires little material. It may be made from scrap tooling calfskin.

Make a paper or cardboard pattern of the dimensions given in the illustration. Make a design pattern on thin paper if you are using tooling leather. Sometimes leather which has not been bark tanned will take straight line tooling. You can find the kind of leather you are using by testing a piece of the scrap.

Plan the cutting pattern on the leather and mark the front and back pieces. You will need a third piece if you are making the holder for the nail file. Cut out the leather, using the metal-edged ruler as a guide on the straight lines. Cut the curves with a sharp scissors.

Moisten the leather. Fasten the design pattern on the leather and trace the design. Remove the pattern and complete the tooling. Both pieces of the comb case may be tooled. Allow the leather to dry on a flat surface.

If you are going to color any part of the design, do it after the leather has dried, carefully following the directions given for coloring on pages 26 and 27.

When the leather is thoroughly dry, skive the sides and bottom of both pieces where they join. Do this on the flesh side of the leather. Apply rubber cement to the skived edges. When the cement has lost its shine apply another coat. Allow it to dry a few minutes until sticky and then carefully place the two pieces of leather together so that the edges match perfectly.

Mark and punch the holes for the lacing. Lace with a whip stitch; use a piece of lacing three times the distance to be laced so that you will not have to splice the lacing. When the lacing is completed, flatten it by tapping lightly with mallet.

If there are any unstained edges of leather showing, color them with a waterproof India ink of a matching color. Polish the case by giving it a light coat of wax and rubbing with a soft cloth.

Lapel Ornaments

People have been adorning themselves with ornaments of all kinds for thousands of years. Scientists called archeolo-

PEN and PENCIL CASES

When zipper is used
omit flap

$1\frac{1}{2}$"

$\frac{1}{2}$"

$2\frac{1}{2}$"

7"

$2\frac{1}{2}$"

8"

POCKET COMB CASES

$1\frac{3}{4}$"

$5\frac{1}{2}$"

$1\frac{3}{4}$"

Skive edges

Plate 5. Pen and Pencil Case and Pocket Comb Case.

LAPEL ORNAMENTS
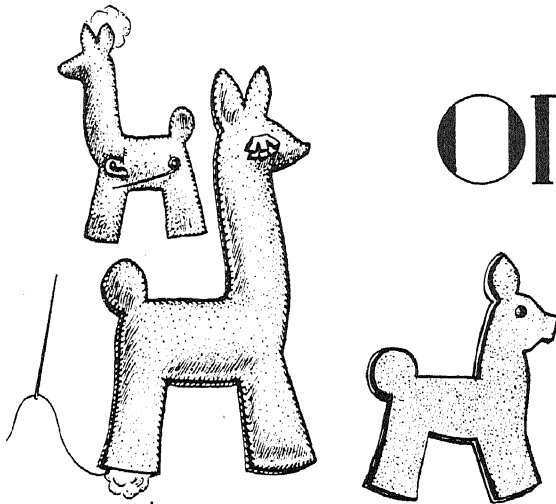
Stuff tightly with cotton or kapok.
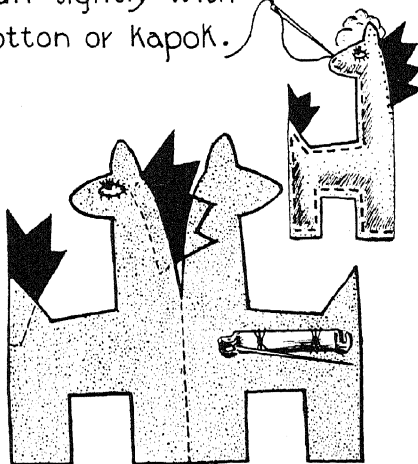
Manner of attaching pin
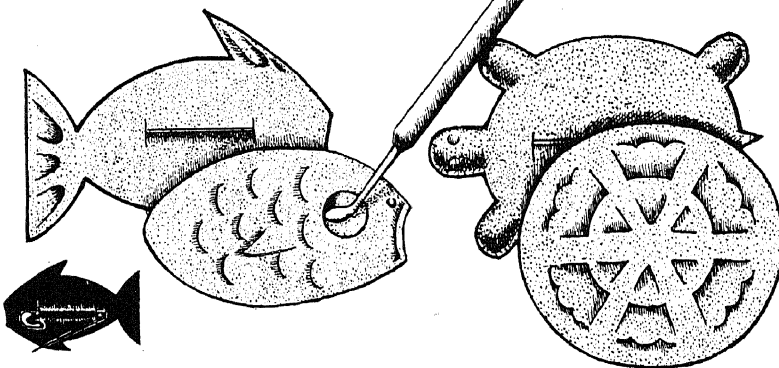
Safety pin   Tooling calf
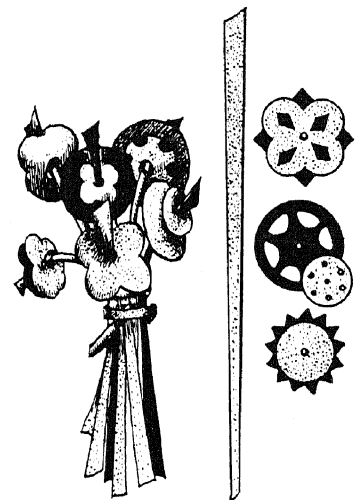
Colored suede flowers

Plate 6. Lapel Ornaments.

A THREE-STRAND BRAIDED BELT

FRONT

FRONT

FRONT

FRONT

FRONT

FRONT

FRONT

FRONT

1 FRONT

2 FRONT

3 FRONT

4 BACK

5 BACK

6 FRONT

Untangle as shown
in 3, 4 and 5; then
repeat braiding.

SPLIT STRAP or BLIND BRAID METHOD
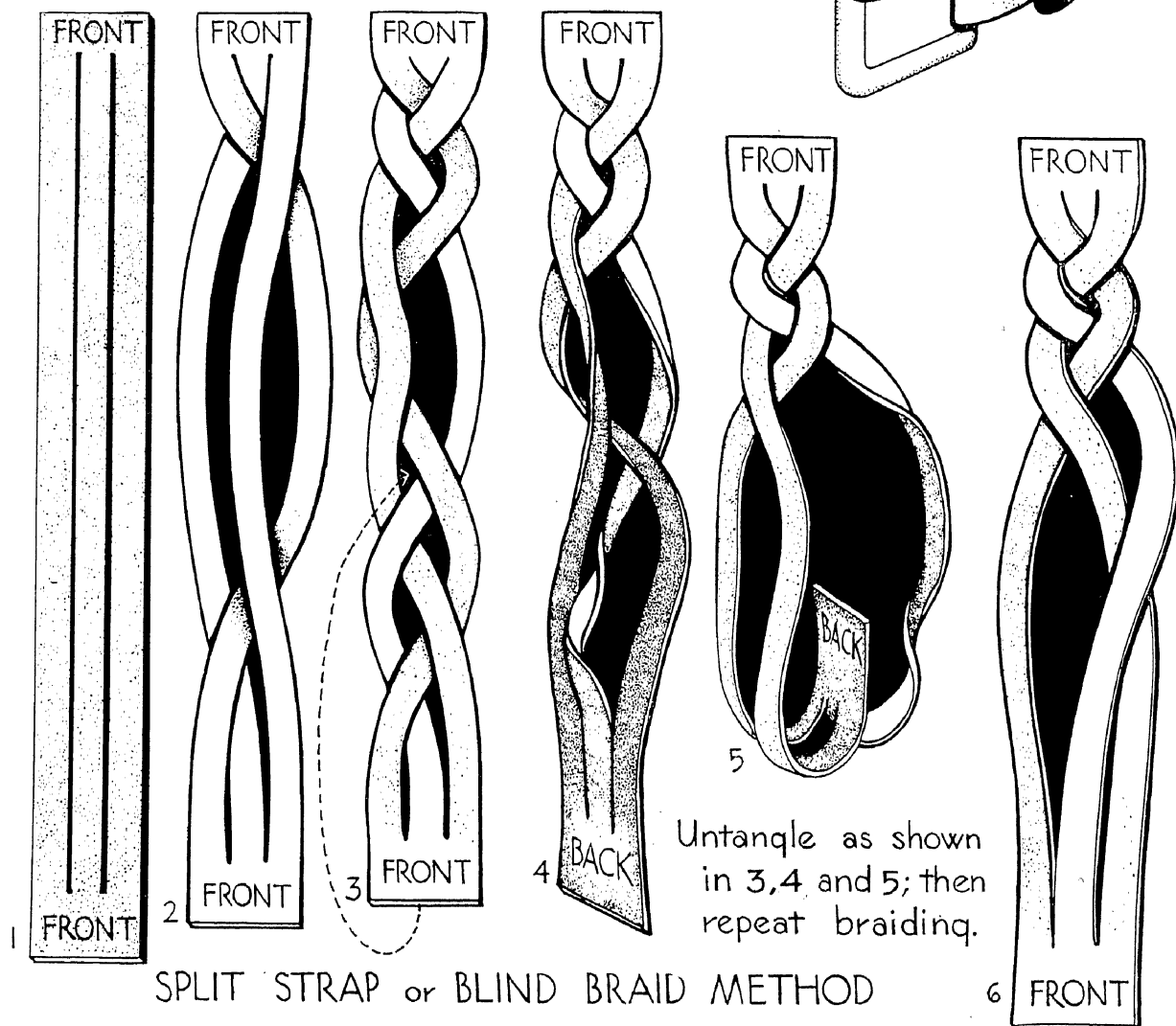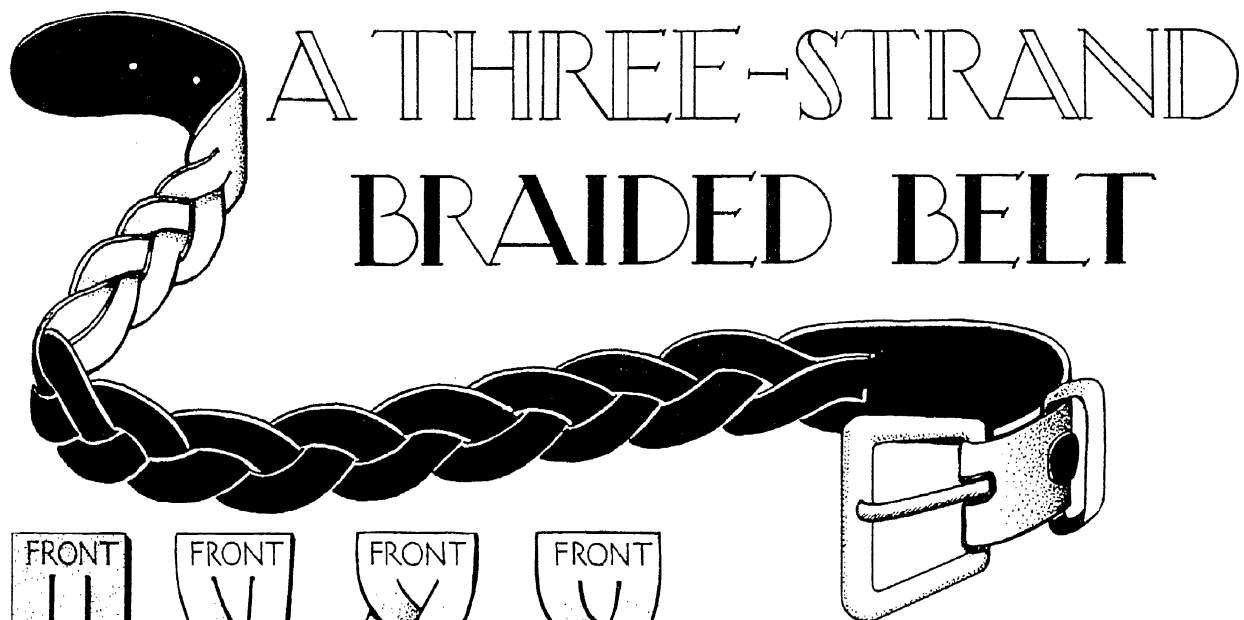
Plate 7. A Three-Strand Braided Belt.

gists have found rings, necklaces, bracelets, earrings, and other ornaments that were worn a long, long time ago. Probably you have seen pictures of savage tribes that wore rings or pieces of bone in their noses. Our American Indian tribes decorated themselves with feathers of birds, furs, and the teeth and bones of animals.

Today, jewelry of all kinds is worn. Novelty trinkets of many sorts are also quite common today. Most of them are worn as ornaments pinned to the clothing. We see ornaments made of wood, plastic, metal, buttons, shells, nuts, seeds, cloth, and leather.

You can make leather ornaments according to your personal ideas. Pieces of suede leather that might be too small to use for anything else often are large enough to be made into lapel ornaments. The plate on page 41 will give you several ideas for these little ornaments; you may use these or work out new ones for yourself. Work your designs out on paper before cutting the leather. The ornaments are small so you should make your designs full size; then you can tell just how any of the ornaments will look when you wear them.

The small animals may be made in two pieces; or, made with the front and back joined along the fold. The leather should have the outline of the eye tooled in it; a spot of brown or black color on the eyeball is effective. The eyelashes are sewed stitches. Insert the safety pin as shown in the drawing. Place the front and back together. Then stitch around the edges; leave an opening for stuffing with cotton. Finish the stitching after the animal is filled with cotton or kapok.

The turtle or the fish ornaments require some tooling on them; use tooling calfskin for these shapes. Dampen the leather and do whatever tooling has to be done. Use the broad end of the modeling tool and bevel the fish scales toward the tail. The eye is **flat modeled**; that is, the eye is pressed below the surface of the surrounding leather. Bevel the tooled marks in the tail.

Insert the safety pin as shown in the illustration. Then stitch the front and back pieces around the edges. Leave the mouth unstitched so the cotton stuffing can be put in. Sew the mouth shut and the ornament is ready to be worn.

Make the flower ornaments from pieces of leather of various kinds and colors. Cut the shapes with sharp scissors. Some of the flowers are round and some have petals cut in them. Combine two or three different colored leathers to make each flower. You may use cutout designs as shown in the illustration.

The stems are made from narrow tapering pieces about 6″ long. Tie a knot in each stem at the wide end. The end above the knot should be about ¾″ long. Make a slot at the center of each petal. Select the petals that are to be placed together. Slip the largest over the end of the stem and push it down to the knot. Then put on the next largest and finally the smallest. Some flowers are made with three petals and some with only two. When you have made five or six flowers, form them into a bouquet and tie them together with one of the stems.

A safety pin may be used to fasten the ornament onto the dress or coat.

A Three-Strand Braided Belt

Leather belts for either girls or boys are easily made by the amateur leatherworker. Belts are useful and decorative and you will enjoy making at least one.

You can make the belt illustrated on page 42 from a piece of cowhide or from a belt you already have. The belt must be a single thickness of leather, not one that is made of several pieces sewed together.

Place the belt on a flat board and mark off the width into three equal parts. Make the marks at each end, then connect the marks by straight lines. **Be sure to leave**

uncut about 4″ on the strap and 3″ on the buckle ends. This much is left solid so that the buckle may be attached and the holes punched for the tongue. Cut along the lines with a sharp knife and a straight edge to make three strips of leather. Make the strips the same length you wish the braid to be.

The method of **blend** braiding is shown in the illustration. Making the braid is not hard; probably you will have more trouble untangling the unbraided part. Follow the drawing closely and you will be able to finish the belt properly. The braiding can be done when the leather is dry; but, if the leather is dampened slightly the braiding will be flatter.

If you are making a new belt, punch holes in the strap end for the tongue of the buckle. Punch three holes about ¾″ apart. Fold the other end back on itself for a distance of about 1½″. Attach a snap fastener. Punch an oval-shaped hole or slot for the tongue. Make a loop ¼″ wide to fit loosely over the belt. When the buckle and loop are in place the belt is ready for use.

Stamped Belts

Belts are necessary and decorative articles. While belts are made of other materials, leather remains the most popular. When you make your own leather belt and stamp or tool a design into it, you have something you will wear with pride. Both boys and girls can make belts.

Make the belt of heavy cowhide, but select a piece of hide that is flexible enough to be used for a belt. You can, if you wish, stamp or tool a belt you already have. To make the belt, measure the distance around your waist with a tape measure. Add 8″ to this length to allow for attaching the buckle and for the belt holes.

You will want to decorate the belt by stamping or by tooling. Work out a design pattern with which you can use two or more stamping tools in combination. The tools you use can be ones that have

been purchased, or some you have made. The illustration on page 45 shows a variety of designs for easily made stamping tools.

All the tools you need are a file, a hacksaw, a drill, and a hand drill. Make the stamps of Bessemer rod or brass rod.

When you have the tools and the design pattern, dampen the leather belt thoroughly.

Before starting to work on the belt itself, take a piece of scrap leather of the same kind as the belt, dampen and stamp it to find out how much force is required. Place the belt on a piece of linoleum or a board for stamping. Tool a light guide line close to each edge with the edging tool; this gives the belt a finished look. Go over the whole belt following the design patterns closely. Have each stamp mark clearly imprinted in the leather.

Attach the buckle either by means of snap fasteners or by lacing. Be sure to make and attach a belt loop made from a piece of leather ¼″ wide and a little larger than twice the width of the belt. Skive and cement the ends to form a loop.

Punch four or five holes for the tongue of the buckle in the other end of the belt. Apply a light coating of wax to the belt and then polish it with a soft cloth.

Link Belts

Light calfskin or cowhide is used in making the belt shown on page 47.

The first step is to make the links; the drawing shows the shape and size of the link used. At the bottom of the illustration are several other designs for links. Make the link pattern on thin cardboard and cut it out carefully.

Lay the pattern on the leather and trace around it with a scratch awl; also trace the outline of the holes. Cut the holes with a sharp knife. The links are cut with sharp scissors.

Twenty-one links are needed for each 12″ of length when the belt is made like the one in the drawing. The link of the

STAMPED BELTS

Stamping leather over board.

Methods of cutting designs on tools.

FILE DRILL SAW

$\frac{3}{8}$

Suggested designs for handmade tools.
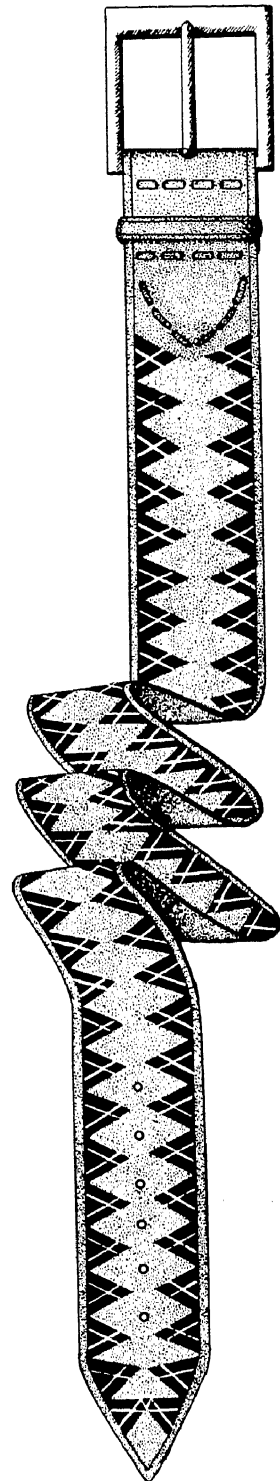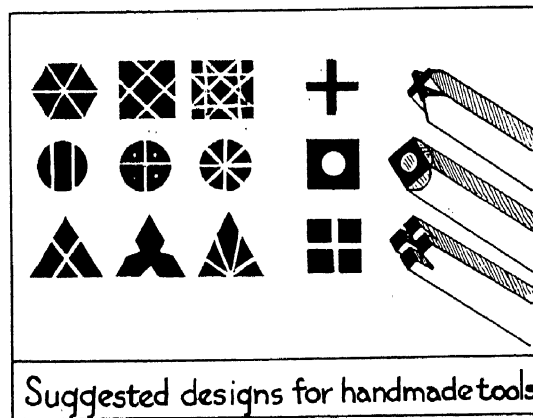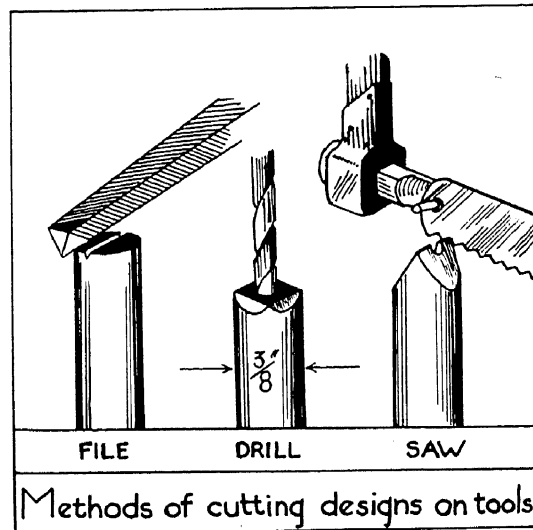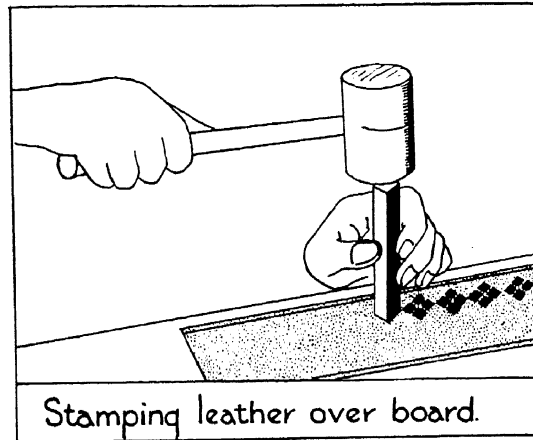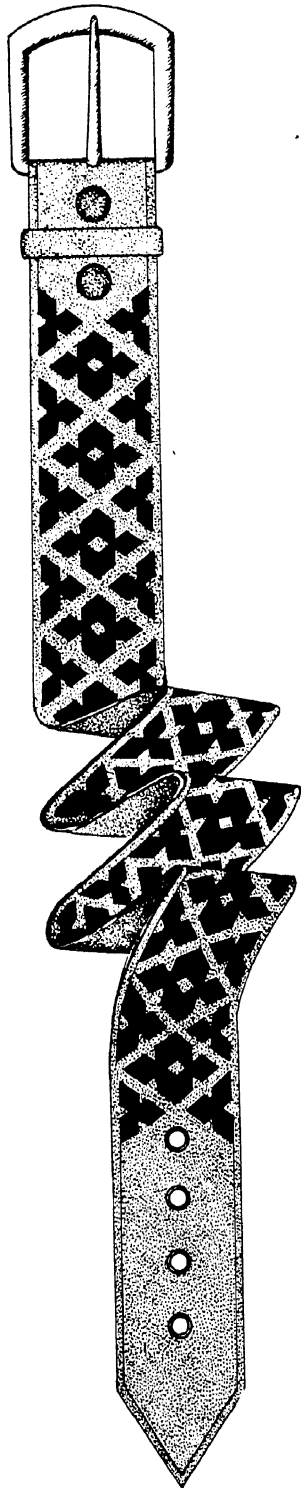
Plate 8. Stamped Belts.

belt shown has three holes in it. This makes each link overlap two holes instead of just one. The buckle and buckle end is about 3″ long and the strap end is 4″ long. Figure the length needed so the tongue of the buckle fits in the center hole. Cut out several extra links in case a few are broken.

You will also have to make the strap end. Cut two pieces for this part and cement the flesh sides together. Cut the end rather pointed. The other end has two link holes in it. Cut these with a knife.

Start the belt at the strap end, putting the first link through the second hole. Each succeeding link is attached to the two links before it; therefore the belt has three thicknesses. When the belt is long enough, cut the outer hole off of one link. This is the finishing link as shown in the drawing.

Cut a piece of leather for the buckle end. Cut the holes for the buckle and for the fastener and then attach the two parts of the snap fastener.

Cut two strips of leather ¼″ wide and 2″ long, skive both ends of each piece. Apply glue and form into loops. One of the loops is attached to the belt as the last link is being put on. Then put the buckle strap through the last link, slip on the loop and the buckle, and insert the tongue through the hole. Snap the fastener.

Punch three holes in the strap end about ¾″ apart. The first hole should be about 2″ from the end. Insert brass eyelets through these holes and set them on the inside of the belt. This completes the belt and it is ready for use.

The links shown at the bottom of the illustration, in plate 9 on page 47 are made into belts in about the same way. The only difference is that the links have two holes instead of three. Because of this the links do not overlap as they do when there are three holes.

Braided Dog Lead

The boy who likes to take his dog out-of-doors will want to make a lead or leash. Two lengths of strong rawhide, each fifteen feet long are needed. Join several lengths by skiving and cementing to make two long pieces of the required length.

Place the two lengths through the ring to which they are to be fastened. Regulate them until the ends are all even. Hang the ring over a hook or a nail. Look carefully at step 1 in the drawing and arrange the rawhide strands in the same manner. Start with the left-hand strand—a black one in step 1—and pass it around back of the two central strands and bring it out toward you. Then pass it over the other black center strand, as shown in step 2. Now use the right-hand strand, pass it around and back of the two center strands and out. Pass over the other center strand. Each time one of the outside strands is passed back of the two strands it becomes one of the center strands, and it must be placed over the other of the two strands. This procedure is followed until the required length has been made.

Then tie a simple overhand knot, using the four strands, as shown in step 5. They will then look as they do in step 6. Next, form the strands, following the procedure shown in step 7; the result is shown in step 8. Now open the squared loop and put through it the end with the ring. A loop for a handle is thus formed. Continue the braiding and follow the steps shown in step 10. Knot the end as shown in steps 11 and 12 to complete the slide.

The type of braiding shown here can be used to make other articles of leather such as a key chain, whistle lanyard, or a watch chain. Smaller leather such as lacing leather would be best for small articles.

Neckerchief Slides

Any out-of-door boy or girl will want to make one or more of these useful ornaments to wear with a scarf or neckerchief. Make the slide of tooling calfskin, sheepskin, or suede. The drawing shows several designs. Select one you like or
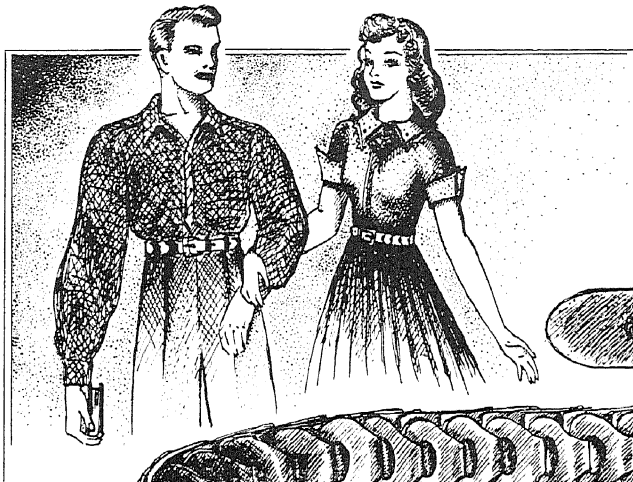
LINK BELTS
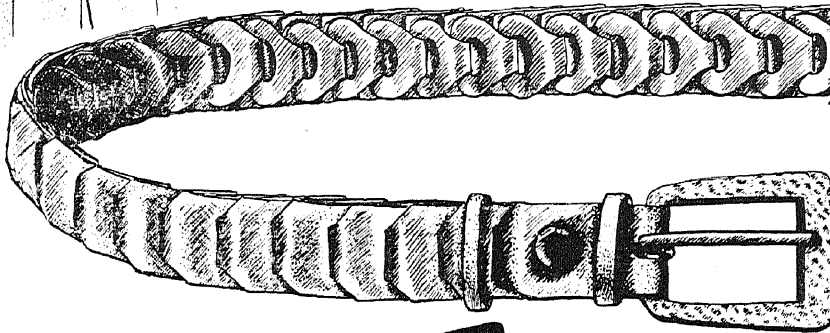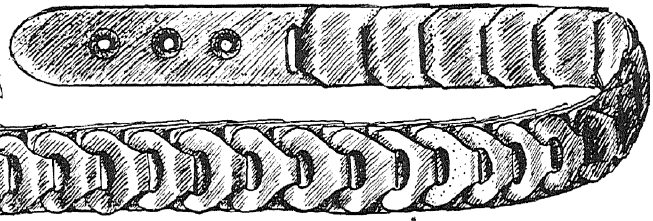
The link
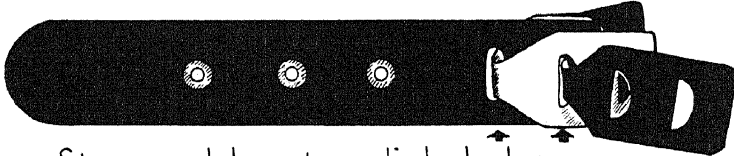
Strap end has two link holes.

Start at strap end; roll rounded end of link to fit through cut out section. Attach each link to two preceding links by placing it through three holes.
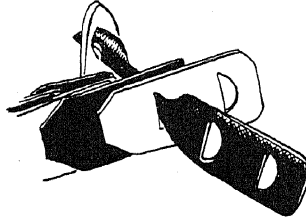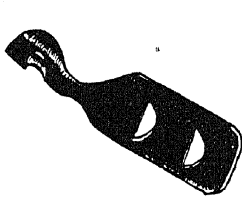
Last link is cut off below last loop.
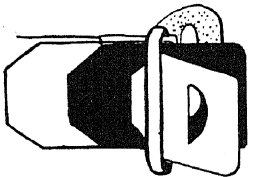
Inserting loop ↑   Buckle end with snap ↑   Attaching buckle ↑
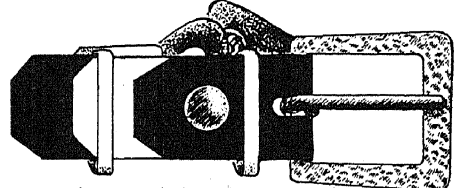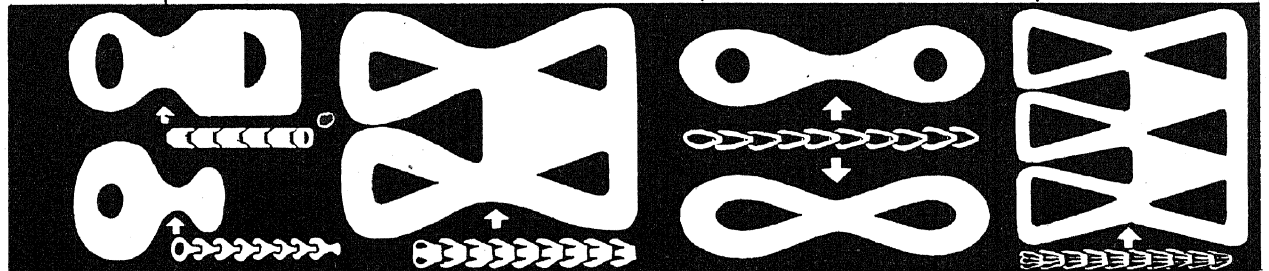
Plate 9. Link Belts.

BRAIDED DOG LEAD
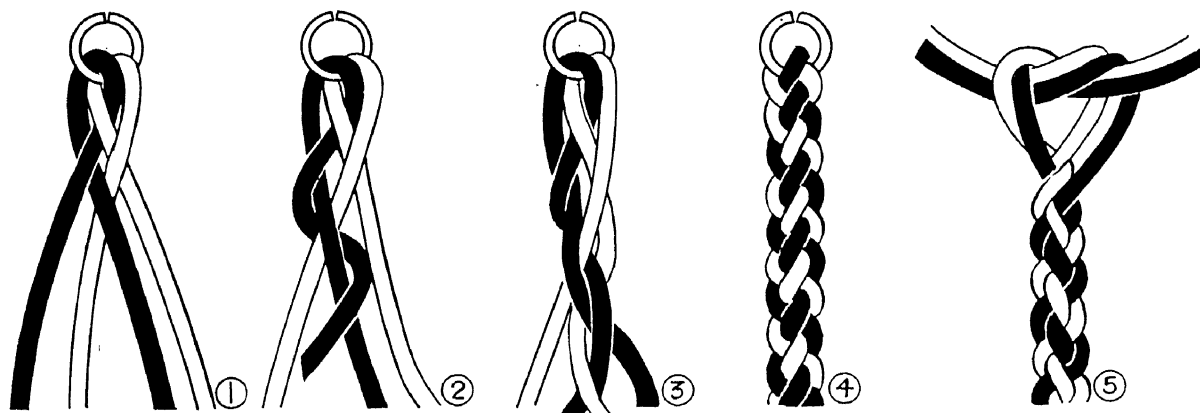
Steps in making round braiding
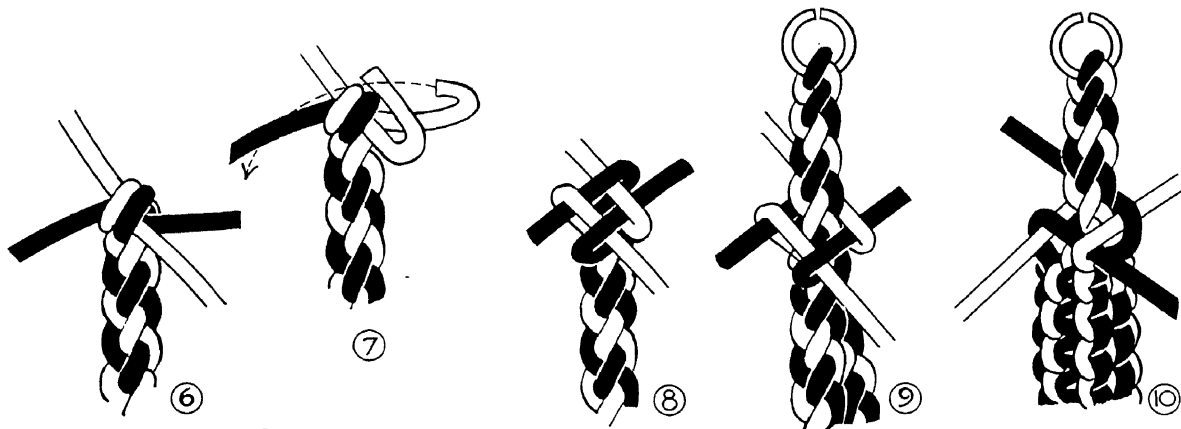
Slide of square braiding around core

Loop

Slide

Lock Knot

Core
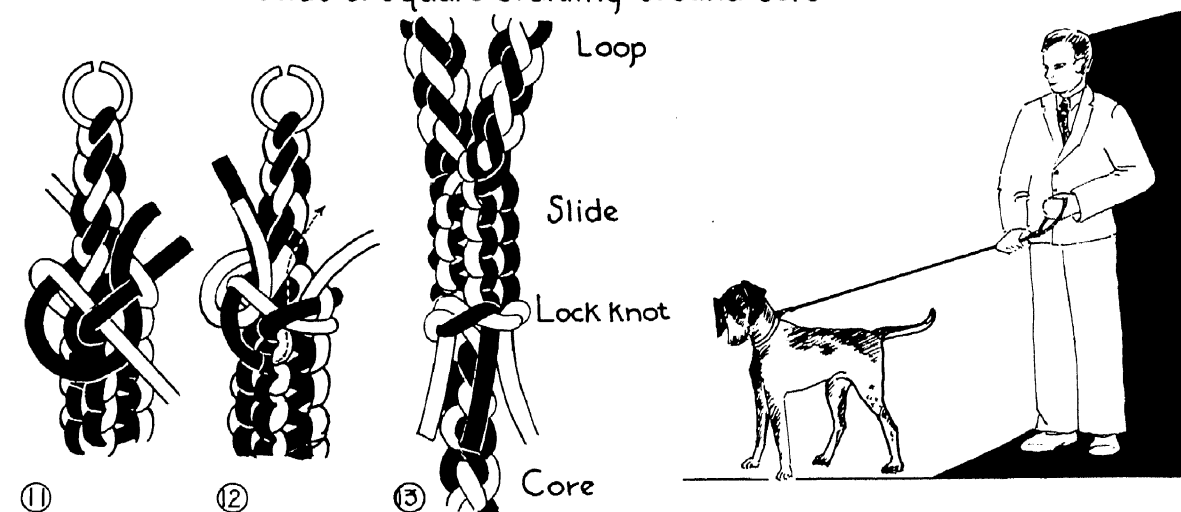
Finished slide with lock knot

Plate 10. A Braided Dog Lead.

NECKERCHIEF SLIDES
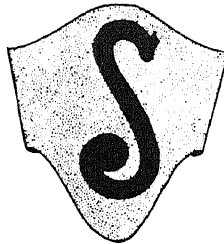
Cut out front and back.
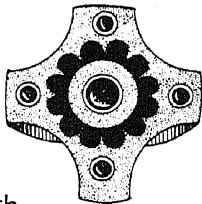
Applique with jewel spots and studs.
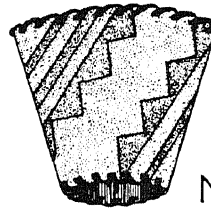
Natural tooling calf dyed with colored inks.
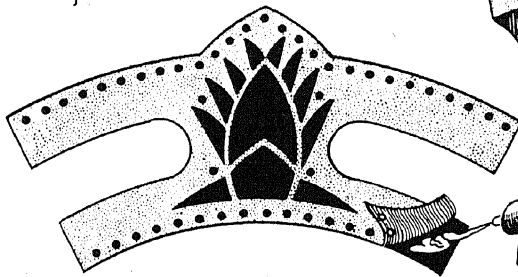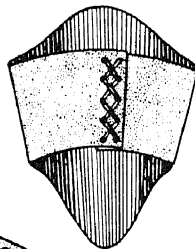
Cutout design is cemented to contrasting leather.
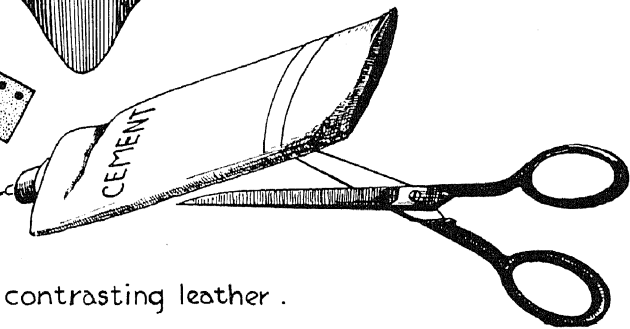
Allowing one inch diameter for lower opening of slide, vary pattern according to leather and design application. Ends may be laced together with running or cross stitch or held with metal fasteners..
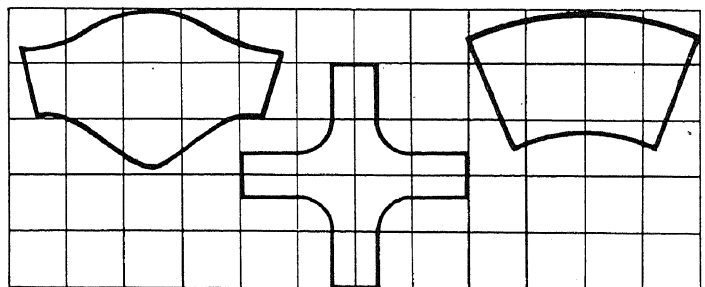
Plate 11. Neckerchief Slides.

make a pattern of your own. Then make a full-sized pattern on paper.

The slide may have a tooled design or it may be made brighter by decorating it in some other way. Slides decorated with colored inks look attractive and gay. Apply ink to narrow strips and lines with a ruling pen; color wide areas with a small brush. Apply the ink evenly to avoid a spotty appearance. Work carefully and do not ink outside the lines. It is best to allow one color to dry before using a second color right next to it; if the colors are both wet they tend to run together.

If the design is to be tooled into the leather, lay out the pattern on paper, dampen the leather, and place the pattern over it. Then go over the lines of the pattern with the pointed end of a modeling tool. Lift the paper pattern and go over each line again to make it stand out clearly. Where parts of the design are to be pressed in or flat modeled, do this tooling after the lines have been tooled and while the leather is still damp.

Where the design is to be colored, this may be done when you are finished with the tooling. Some inks may be applied while the leather is slightly damp. Try the ink on a piece of dampened scrap leather first to find out if it will go on smoothly.

Boys will probably want to lace the edges of their slides. With the leather lying flat, mark the positions for the lacing holes. A spacing wheel or even an old table fork is suitable for marking evenly spaced holes all around. Punch the holes with a spring or a drive punch. Use 3/32" leather lacing. Lace the ends together, using the cross stitch or the running stitch. Then lace the two edges, using the whip stitch. Conceal the ends of the lacing.

Several suggestions for the girl's slides are shown on the plate. On one of them the girl's initial is cut out of the leather. A sharp knife is best for doing the cutting. Work over a pine board.

On another of the slides a rosette of thin leather of contrasting color is cemented to the slide. Glass and metal stud ornaments are then attached to the four corners and in the center, completing the job.

The slide in which the outer layer of leather is cut away is also attractive. The outer layer is cut with a knife to the design wanted. Then an inner layer of thin leather of contrasting color is cemented to the inside. Rubber cement or special leather cement is suitable for holding the two layers together. When the ends are laced together, the slide is ready for use.

A Turk's Head Knot of Leather

The Turk's Head knot makes an attractive neckerchief slide that is a little out of the ordinary. It is a popular slide both with boys and girls.

Make the knot from thin cowhide. Use a piece 3/16" wide and about 36" long. Tie an overhand knot close to one end. Lay the strip across a piece of 3/4" dowel rod or broomstick, as shown in step 1 of the illustration on page 51. Then weave the knot, following the numbered steps. Complete the Turk's Head by tying an overhand knot in the second end.

Give the knot a polish by applying wax, followed by rubbing with a soft cloth.

Sewing Kit

The sewing kit is a handy article to carry while traveling. The one illustrated on page 52 will hold three small spools of thread and has a piece of wool cloth for the needles. The case does not require much leather and may be made from scraps left over from other projects. Use calfskin or lightweight cowhide.

First make a cardboard pattern of the body of the sewing case, using the dimensions given. Lay the pattern on the leather and mark around it. Then take your pencil compass and set it with a radius of 5/8". Draw two separate circles on the leather. These circles will be 1¼" in diameter. Cut out the leather for the body and
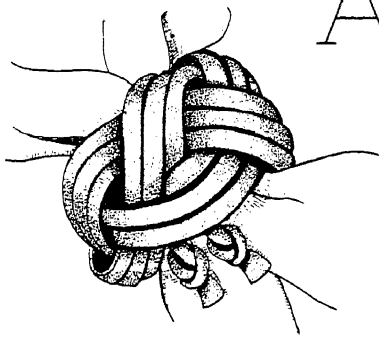
A TURK'S HEAD KNOT
of Leather
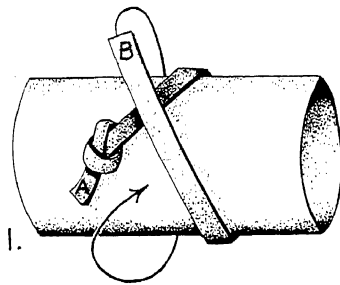
1. Begin at A. Bring B over A and back of core.
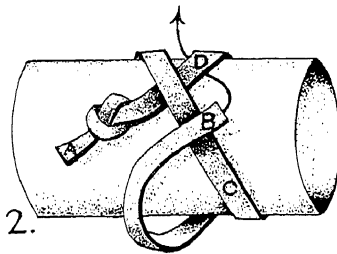
2. Continue B over C and under D.
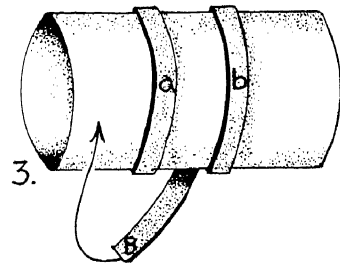
3. Turn core over.
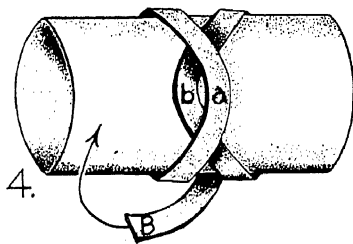
4. Cross a over b, using B as working end.
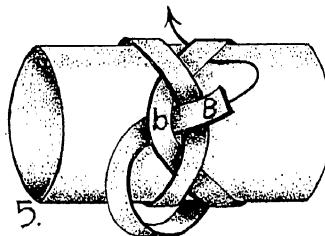
5. Thread B under b and over a.
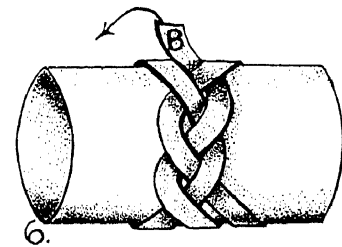
6. Follow through by threading B under b.
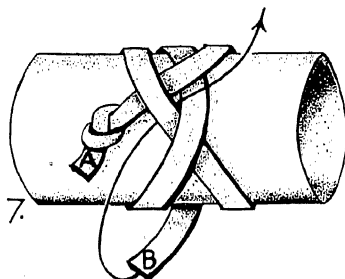
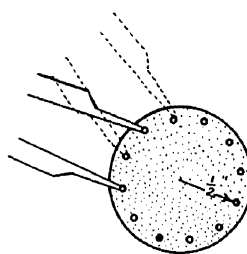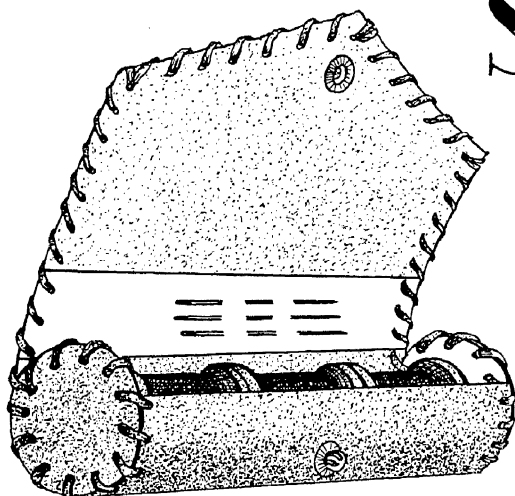**7.** Turn core over and thread B alongside of A. Follow direction of arrow.
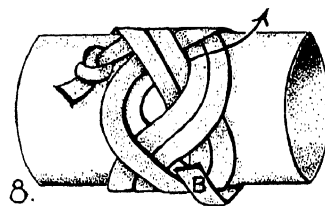
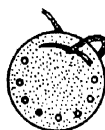**8.** Weave until there are three parallel strands around the knot.
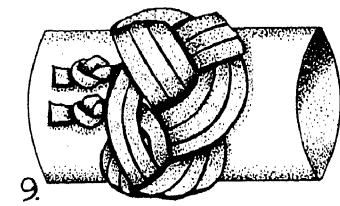
9. Knot end to use as a slide.

Plate 12.   A Turk's Head Knot of Leather.

SEWING KIT

BODY

3 holes for wool

8 holes for end

$1\frac{1}{4}''$

$\frac{5}{8}''$

$6\frac{3}{8}''$

$3\frac{3}{4}''$

WOOL

$\frac{3}{4}''$

END   END

Make two discs of leather, and two of fiber board.

To get 12 holes, set dividers at $\frac{1}{2}''$ and go around inner circle twice.

Put fiber board on flesh side and lace through any four holes.
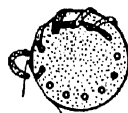
On fifth hole start to join body to end.

Continue lacing along body, and join other end in last eight holes.

Plate 13. Sewing Kit.
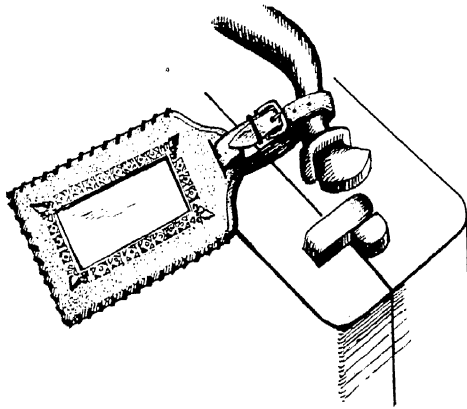
BAGGAGE TAGS

Punch holes for lacing along the edge and on the strap for fastening. Sew on the buckle. Assemble the parts.
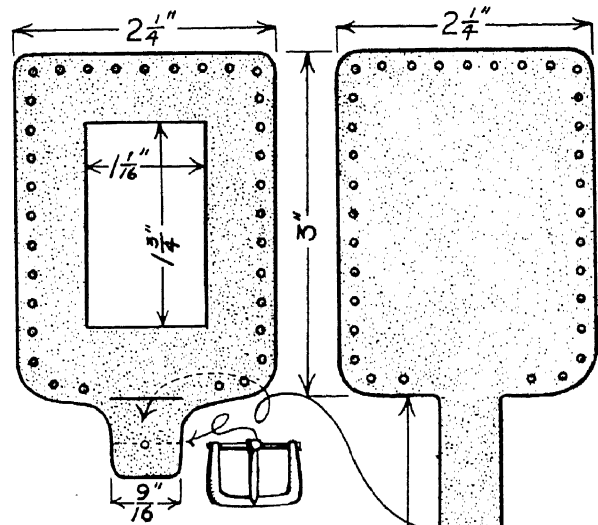
Double-face baggage tag
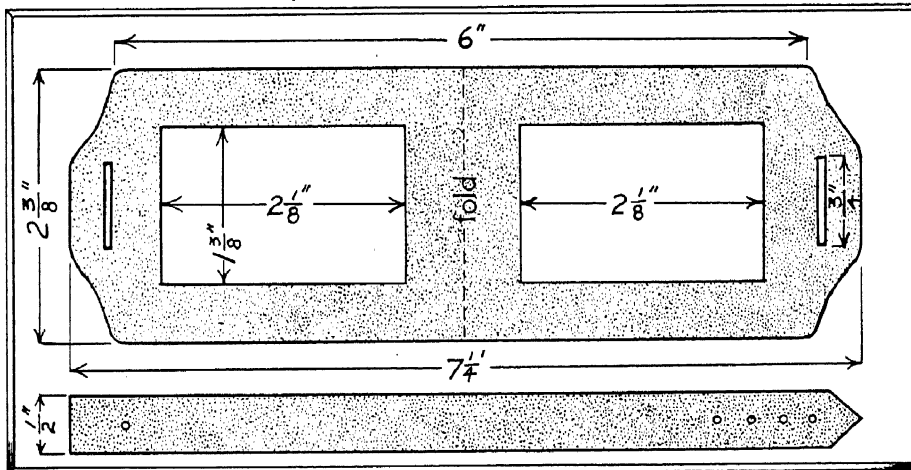
Make flap longer if necessary.

Plate 14. Baggage Tags.

the ends. Use a sharp scissors to cut the ends.

Draw two circles on fiberboard with the compass set at ⅝". Cut out the fiber discs. They are used as a backing on the end pieces to make the case more rigid.

Set the pencil compass at ½" and draw a circle in each of the leather ends. On these circles mark for twelve holes and punch the holes. To get twelve holes, set the dividers at ½" and mark off around the circle twice, as shown in plate 13, on page 52.

Glue the fiberboard discs to the flesh side of the end pieces. Punch holes through the fiberboard and through the leather. It may be necessary to punch from both sides to get clean-cut holes. Cut a piece of wool cloth ¾" wide and 3 ¾" long.

Lace through any four holes on an end piece. On the fifth hole start lacing the end to the body of the case. The first eight holes in the body are used in attaching the end piece. As you lace the next three holes, attach one end of the cloth. Make the holes in the cloth with the awl. Continue lacing around the edge and lace in the other end of the cloth in the correct holes. Use the last eight holes to attach the second end.

Locate and punch the hole to fit the cap eyelet and attach the cap. Put three spools of thread in the case. Close the case and press hard enough on the cap to make an impression on the leather underneath. The center of the mark made by the bottom of the cap is the location for the spring. Punch the hole to fit the spring post and attach the spring. If necessary, adjust the spring so that the snap button works easily.

Complete the sewing case by giving it a coat of wax and polishing with a soft clean cloth.

Baggage Tags

The person who travels needs an identification tag on each of his bags and suitcases. Perhaps you can use some of the tags illustrated on page 53 yourself; or, you may know someone who would like to have them.

You can use tooling calfskin for the tags you make. Make paper patterns for both the front and the back pieces. In the tag shown at the upper right of the drawing, the two parts are different so you will have to make two patterns. The style of tag shown on the suitcase at the top left of the picture has a separate strap and both the front and back pieces of the tag are the same size.

Cut the leather with a sharp knife. Round off the corners with scissors. Make lines for the window, and then cut along these lines. Cut slots for the strap. Be careful not to make them too close to the edge since this will weaken the leather.

The margin around the window should be decorated by tooling or stamping. Work out a design on paper. Then dampen the leather, place the pattern over it, and go over the design with the proper tool.

Place the two parts together and punch the holes for the lacing. The holes should be ⅛" from the edge and about ⅙" apart. Make the holes with either the drive or the spring punch. Use a piece of 3/32" lacing leather, about three times longer than the distance to be laced. Start at one of the corners nearest the strap and lace three sides, using the whip stitch.

If the strap is not part of one of the tag pieces, make a separate strap. Attach a small buckle and punch holes in the other end. The strap is pushed through both slots in the tag after a piece of celluloid and the identification card have been put inside. Double-face tags have a window and a piece of celluloid on each side, as shown on page 53. Place the strap through the handle of the suitcase and buckle it.

If the strap is a part of one of the tag pieces, then it is only necessary to attach the buckle and punch the holes for the tongue. Small buckles like these may be
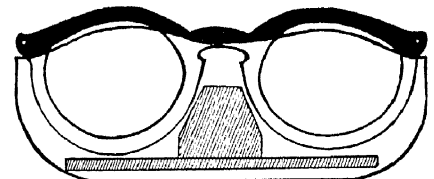
SUN GLASSES CASE
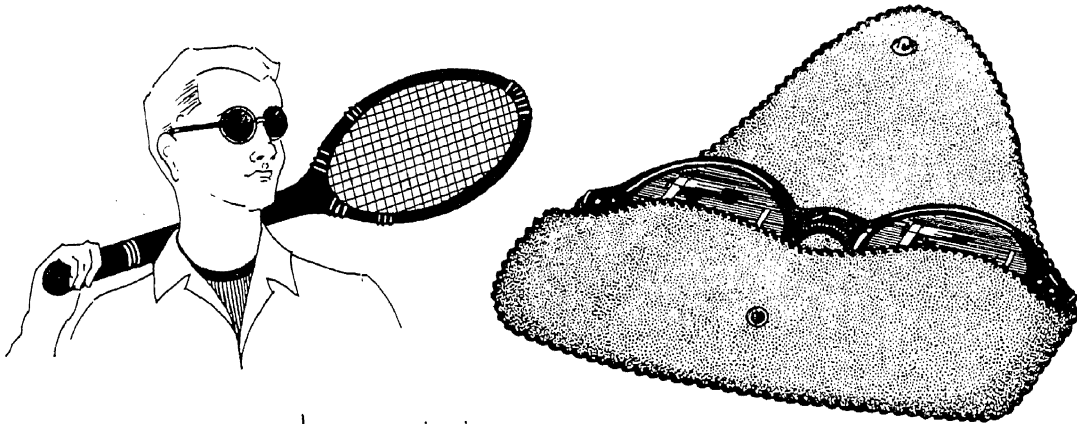
I square represents I square inch
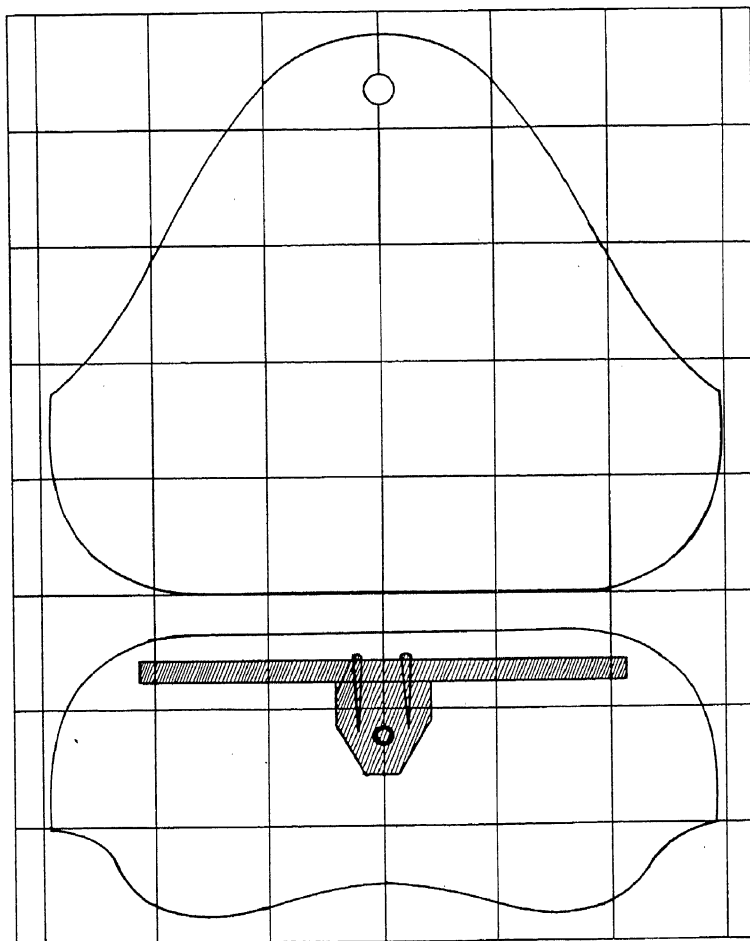
Pattern for leather case and wooden separator

Case may be finished with or without wooden separator. Size of pattern may be decreased to fit pair of ordinary glasses.

Shaded section indicates placement of wooden separator which is glued to sides and base of case.

Monogram unit for flap

Plate 15. Sun Glasses Case.

sewed to the leather with a needle and a coarse thread.

Sun Glasses Case

The sun is vital to all of us. It causes our foods to grow and it helps to keep us happy and healthy. However, the sun can be most unkind to our eyes. On bright days many of us wear sun glasses to shield our eyes from the brilliant rays. Of course, when we are not wearing the glasses we need a case in which to protect them.

You can make your sun glasses case from almost any kind of leather; a stiff leather such as cowhide or steer hide is probably best. The pattern shown in the drawing on page 55 will fit most styles of glasses. Lay out 1″ squares and trace the outline of the patterns just as they are shown. Lay your sun glasses inside the outline to make sure the case will fit them.

If the size is correct, cut out the patterns, place them on the leather, and trace around them with a scratch awl or a pencil. Cut the leather with sharp scissors or shears.

The case may be left plain or it may be decorated in some way. If you care to decorate the case with some tooled design, try to tool a scrap of the same kind of leather to make sure it can be tooled. Make the design on thin paper. Then dampen the leather and place the design pattern on the grain side with the leather lying on a piece of glass or linoleum. Go over each line of the design with the pointed modeling tool. Remove the paper and go over the design again to bring out the lines. Other means of decoration can be used, such as staining or dyeing. Directions for doing these are given on pages 26 and 27.

After they are decorated, place the two pieces of leather, flesh side up, at the edge of the table and skive the edges that are to be joined. Apply a layer of rubber cement to the skived edges and when it looks dull put the edges together.

Mark a pencil line ⅛″ away from the edge all around the case. Mark holes about ⅙″ apart on this guide line and punch the holes with a drive or a spring punch. Use a piece of lacing 3/32″ wide and three times as long as the distance to be laced for lacing the edges; use the whip stitch. Carefully hide the ends of the lacing by tucking them inside.

Mark the location of the snap fastener on the flap. Punch the hole and attach the top part of the fastener. Press down on the flap so that the snap leaves an imprint. Punch the hole and attach the lower part of the fastener.

Make the wood separator next. It helps to protect the glasses, but you can leave it out if you wish. It is made of pine about ⅜″ thick, shaped as shown in the illustration, and is glued to the inside of the case with ordinary glue. This separator completes the case and it is ready to be used after waxing and polishing.

Coin Purses

You will enjoy making a coin purse either for personal use or as a gift. The drawing on page 57 shows three different types. Tooling calfskin should be used; or, if you prefer a rough leather, use steer hide or calfskin prepared with a rough finish.

On heavy paper, make a careful pattern of the purse you select. Cut out the pattern, place it over the leather, and trace around it with a pencil. If you use dark leather, make the lines with a scratch awl. Cut the leather along the lines, using a sharp knife for the straight lines and scissors for the curved ones.

Draw the design that is to be used to decorate the purse on thin paper. If a rough-textured leather is being used, this type should not be tooled. When tooling leather has been properly dampened, fasten the design pattern with paper clips. Lay the leather on a hard surface and trace around the pattern with the pointed end of the modeling tool. Be sure to go over each line of the design. Now remove
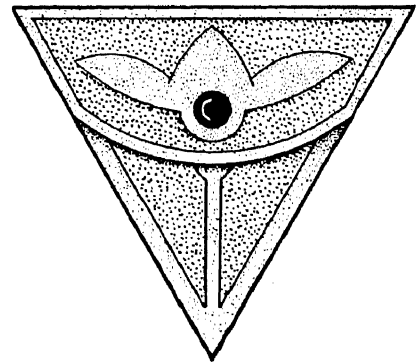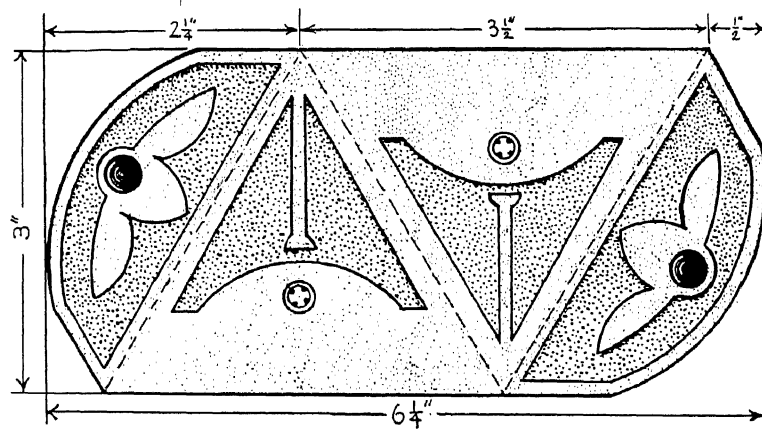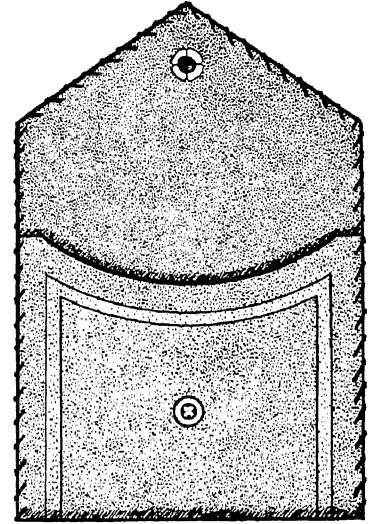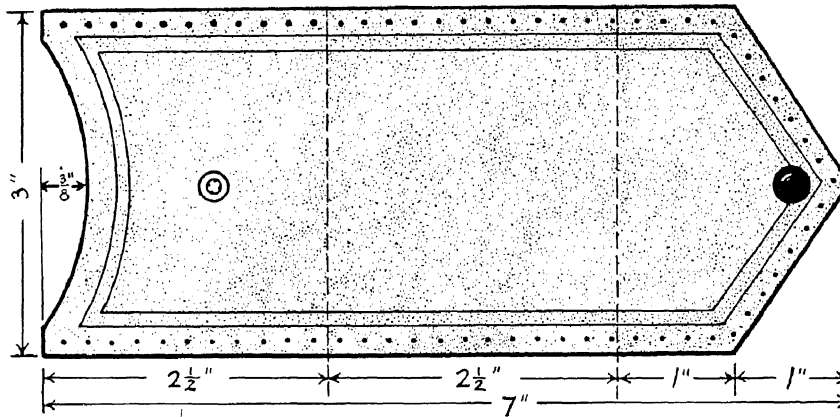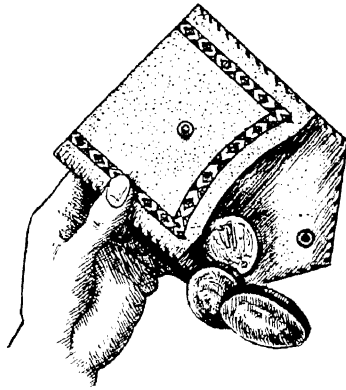
COIN PURSES
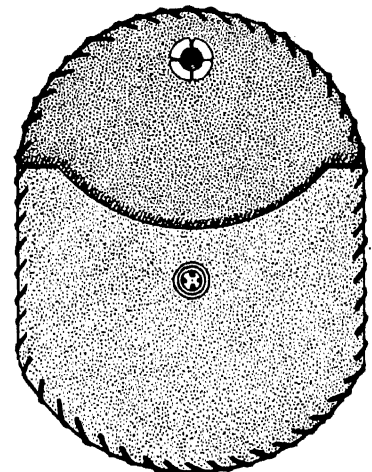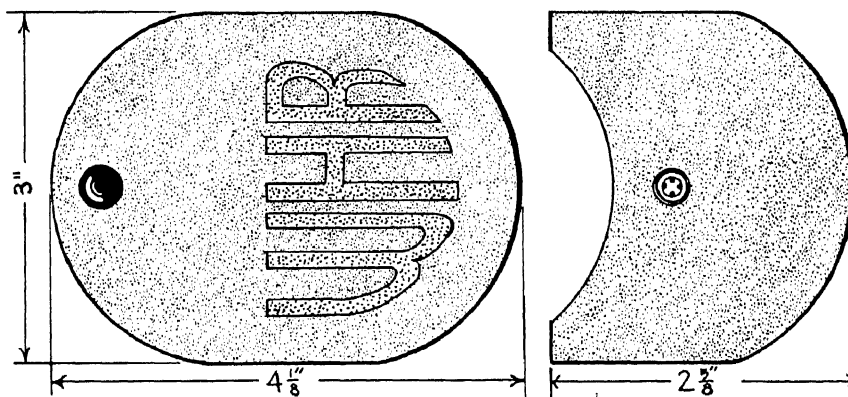
Plate 16. Coin Purses.

the pattern and complete the tooling by going carefully over the lines, again using the pointed end of the tool.

The background is to be given a stippled effect. This can be done by pressing downward with the pointed end of the tool. Cover the whole background in this way. Sandpaper could be used to decorate the background, following directions for making sandpaper patterns on page 26.

When the leather is dry, skive the edges that are to be joined. Work carefully, using a sharp knife. Apply a thin coating of cement to the skived edges and place them together.

Locate and punch the holes for lacing. The spacing wheel may be used for marking these holes, but you must be careful

Figure 24. Flattening the Lacing with a Mallet.
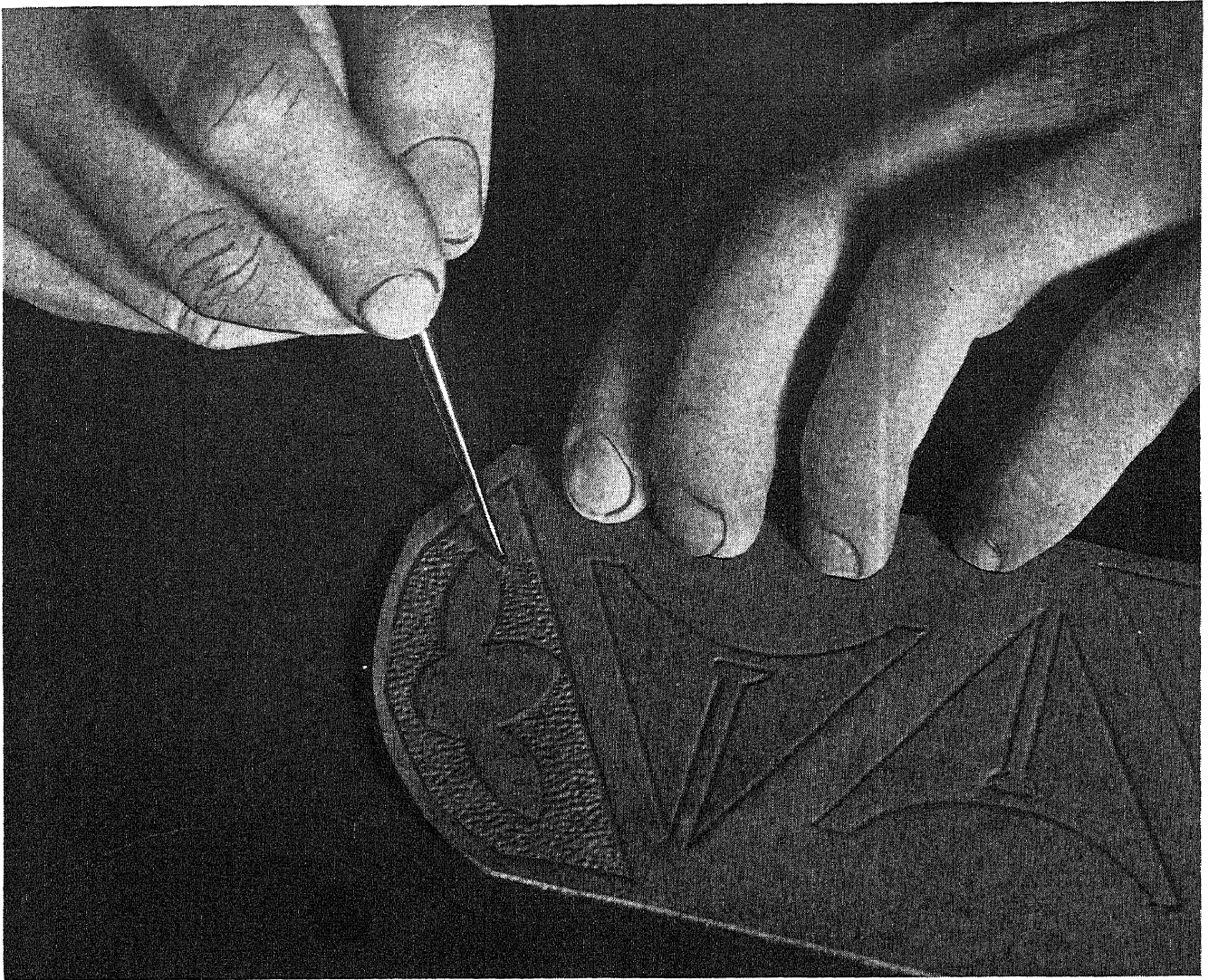
Figure 25. Stippling with the Point of the Modeling Tool.

when marking around curved edges. Use either spring or drive punch for making the holes. The length of lacing used is three times the distance to be laced. Lace the purse all the way around with 3/32″ lacing; conceal the ends.

The **triangular purse** has no lacing. To finish it, fold the leather along the dotted lines shown in the drawing on page 57. Punch holes for the outer parts of the two snap fasteners. Place the eyelets in the holes, using the bodkin. Drive the caps in place with hammer and mallet.

When the outer part of the snap is in place, fold the purse flap to its closed position and press the cap firmly so that it makes a mark on the leather underneath. Punch a hole through the center of the

mark. Insert the post of the fastener from inside the purse. Then put the spring in place and attach it to the post, using the hammer and mallet. Any of the three coin purses illustrated is completed in this manner.

Key Case

Key cases are always useful articles since they keep keys together and prevent wearing out the lining of pocket or purse. Tooling calfskin is about the best leather to use, although other leathers may be used if the worker desires.

For a case holding four key snaps, a piece of leather 3 5/8″ wide by 5 1/4″ long is needed. The size is determined by the number of keys you wish to include.

KEY CASE
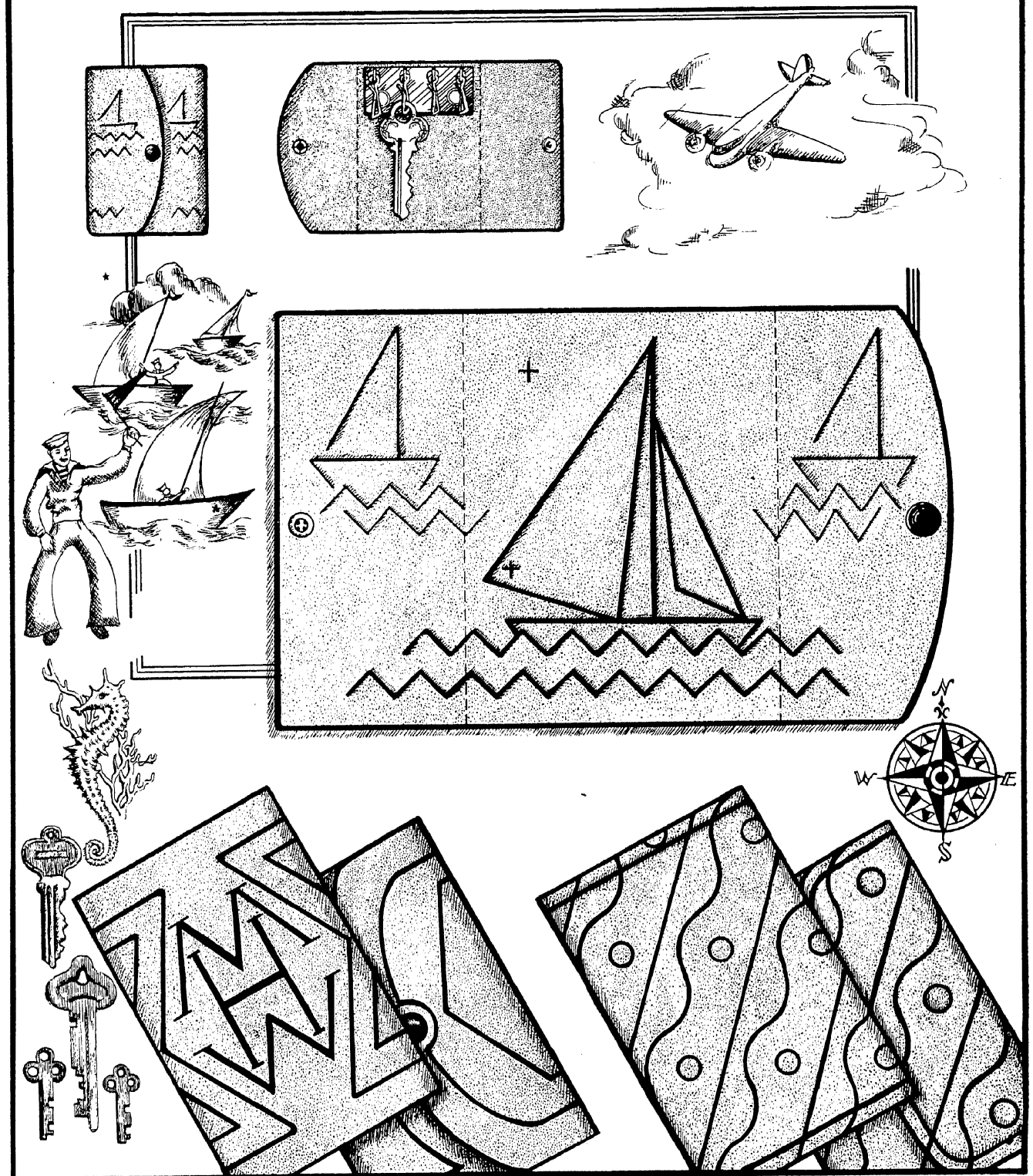
Plate 17. Key Case.

TWO=POCKET SCISSORS CASE
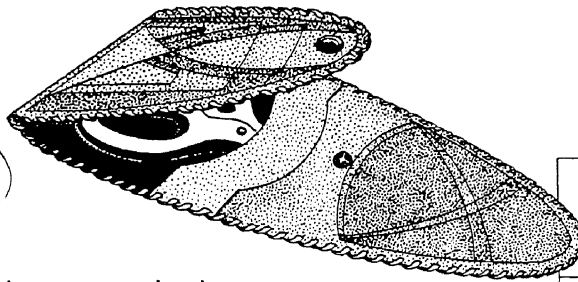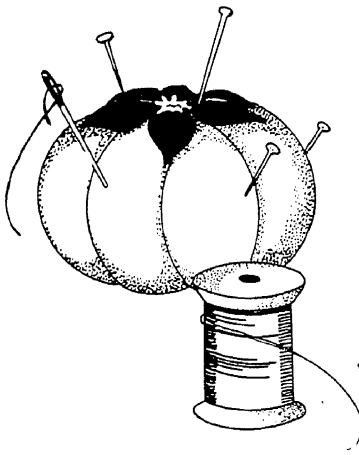
Scale- 1 square = 1 square inch

Make paper pattern on squared paper. To change size of case make squares larger or smaller. Each square in illustration represents 1 square inch.
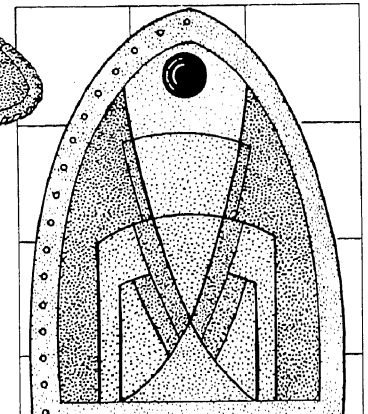
Omit portion between dotted lines for small case
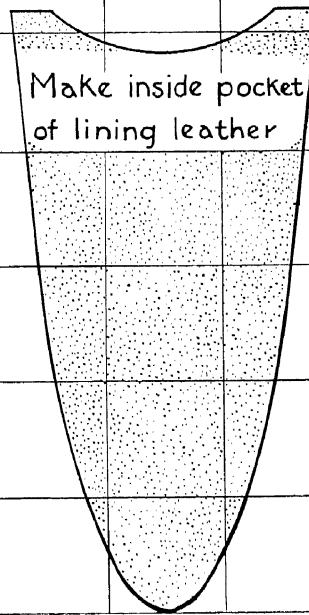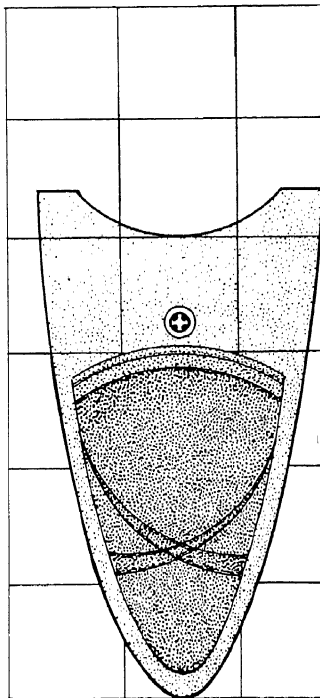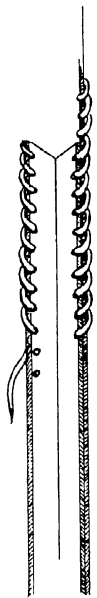
Make inside pocket of lining leather
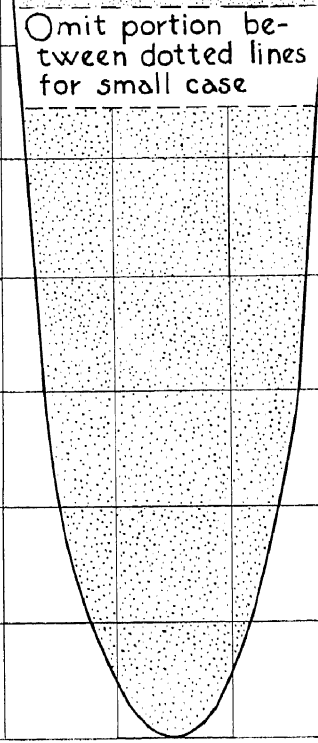
Detail of gusset   Small pocket   Large pocket   Cover and lining

Plate 18. Two-pocket Scissors Case.

The drawing on page 60 shows several designs that may be used, although you may wish to make your own pattern. Plan the design pattern on paper and cut it on the outside lines. Place this on the leather and trace the outline with a pencil or tracer. Using a ruler as a guide, cut the leather to size with a sharp knife. Have the leather lying on a piece of wood, and cut through it with one stroke of the knife. Sharp scissors may be used in cutting curved lines.

Dampen the leather thoroughly and place the design pattern over it again, holding it with paper clips. With the leather on a hard surface such as glass or linoleum trace along each line of the design. Use the point of the modeling tool for this. Remove the pattern and go over the lines a second time, tooling each line of the design carefully.

When the tooling is finished, you may want to decorate the background in some manner. Stippling done according to the directions on page 20 makes the case attractive. Make a crease close to the edge all the way around, using the metal edge creaser.

Cut a piece of thin stiff cowhide to fit as a liner inside the key case. This stiffens the case and causes it to hold its shape better. Skive the edges of this piece all the way around.

Punch the holes for the key snaps and attach the key plate to the case with the cowhide liner between the two pieces. Use hollow eyelets as shown on page 37.

Punch a hole for the top part of the snap fastener and attach it to the flap. Close the flap and press down on the cap. The mark of the cap will be left on the leather underneath. Punch through the center of this mark and attach the lower part of the snap.

After being cleaned and polished, the case is ready for use.

Scissors Case

Scissors should be kept in a case. An excellent scissors case made from tooling calfskin is shown on page 61.

Make a pattern of the scissors on squared paper. Follow the method described on page 17 in transferring the outline of the pattern in the illustration onto the squared paper. Lay the scissors over the pattern to make sure they will fit the case when it is made. Cut the pattern, then place it on the leather and trace around it.

Cut the leather for the cover and the two pockets. The large pocket should be made of lining leather. Use calfskin for the cover and small pocket.

You will probably want to decorate the scissors case in some manner. You can do this by tooling a design in the leather. Cut a design pattern of the right size and work out your design on the pattern.

Dampen the leather thoroughly from the flesh side. Lay it flat on a piece of glass or linoleum. Place the paper pattern over it. Go over each line of the design with the pointed end of the modeling tool. Remove the pattern and go over the lines again to make them stand out clearly.

Stipple the background by pressing the point of the modeling tool down into the leather. Cover the surface to be stippled with marks made in this manner. Make the marks close together but do not have them overlap. Tool and stipple each piece that is to be decorated.

You could stipple the background with sandpaper. Use No. 1 sandpaper and from it cut a pattern of the area to be stippled. Place this sandpaper pattern with the rough side against the damp leather. Lay a board on top and press downward; the sandpaper marks are left in the leather, giving a stippled appearance.

While it isn't necessary, you may want to attach the small pocket to the case with a **gusset**. This extra piece makes the pocket hold larger articles than it otherwise would. If you use a gusset, make it of lining leather. Cut a piece ¾" wide

TOOLED BOOKMARKS
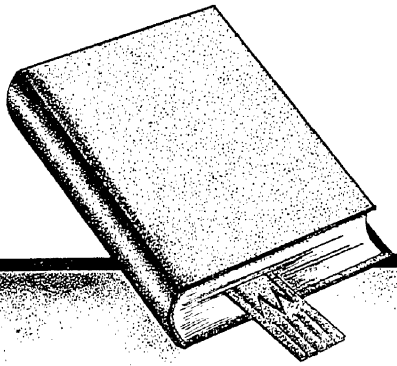
Use tooling calf or sheepskin. Make original design on paper. Transfer the design to wet leather and tool as shown.
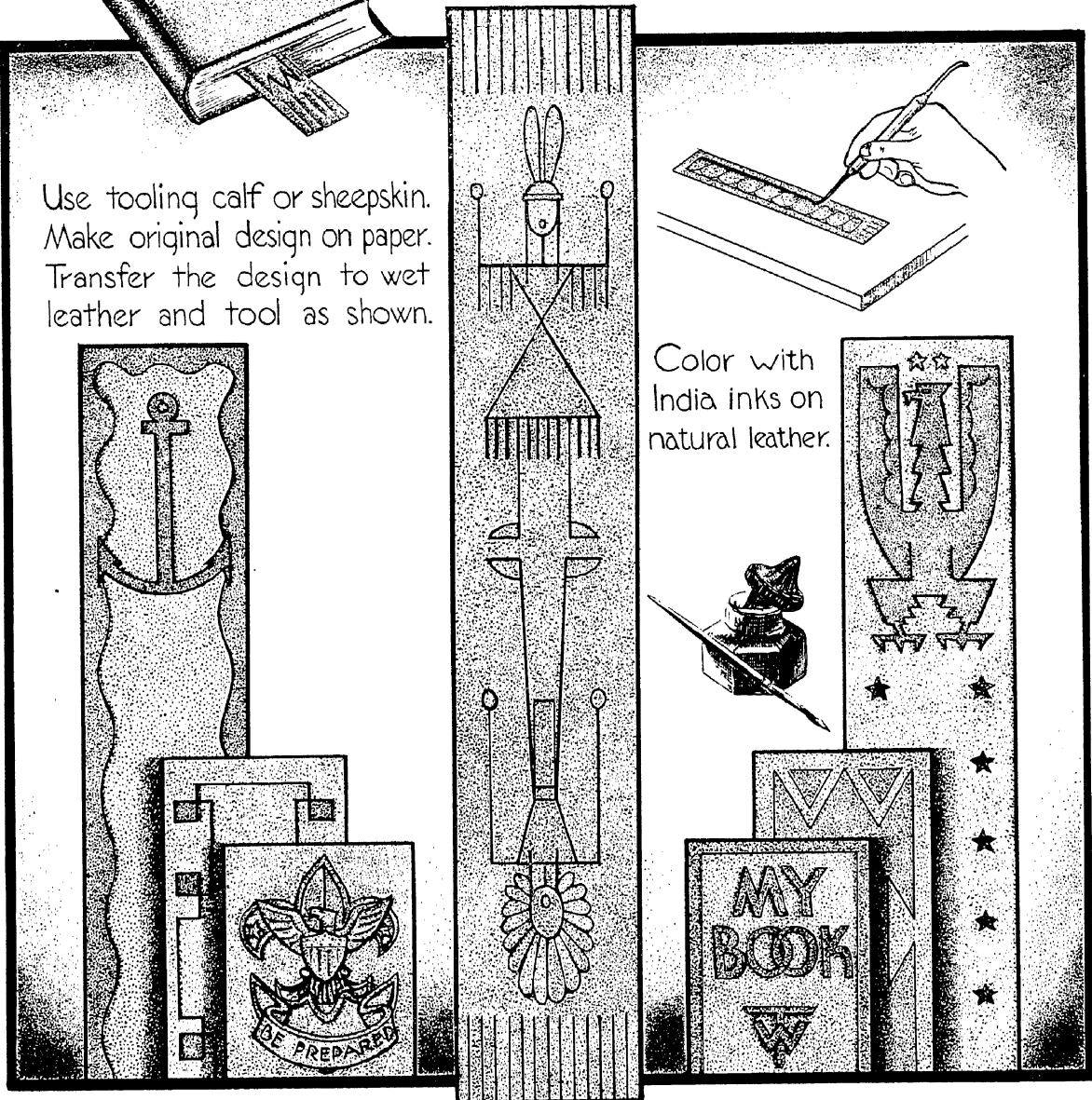
Color with India inks on natural leather.

BE PREPARED

MY BOOK

"THERE IS NO FRIGATE LIKE A BOOK TO TAKE YOU LANDS AWAY"

Plate 19. Tooled Bookmarks.

and as long as the length of the sides of the small pocket.

Skive the pieces along the edges that are to be joined by lacing. Mark the holes for the lacings, making the marks 1/8″ from the edge and about 1/8″ apart. Coat the skived edges with a layer of rubber cement. Then place all the pieces together in their proper positions. When the cement has dried punch the holes, using a spring or a drive punch. Punch all the thicknesses at one time.

Lace all around the case with 3/32″ lacing; use the slip stitch. If the small pocket is joined with a gusset, lace the gusset in place and then lace the small pocket to the gusset.

Attach a snap fastener, and the case is finished after cleaning, waxing, and polishing.

Tooled Bookmarks

The girl or boy who likes to read books will have much use for bookmarks. Perhaps you would like to make several bookmarks by different methods. There are many designs that can be used; a few ideas are shown in the illustration on page 63.

Plan the design for a piece of leather 1 1/2″ wide and 8″ or 8 1/2″ long. First make the design on paper. If you are designing your own, do not be satisfied with the first one you make. Try several times until you are satisfied.

Use tooling calfskin or tooling sheepskin in either natural color or dyed. Place the design pattern on the dampened leather. Transfer the design to the leather by tracing over each line with the tracer or the point of the modeling tool. Lift the pattern and go over the lines again.

Bookmarks may be decorated in other ways than tooling. Backgrounds or borders may be stippled with the point of the modeling tool, with the stippler, or by the sandpaper method. Any of the various stamping tools may be used. Whatever method of decorating the leather is used, the worker must be careful to make stippling uniform and inside the area outlined. Marks made by overlapping the tooled lines spoil the appearance of the article.

Colors may be used to decorate the bookmarks. Probably you will want to color only the light shades of skin, since colors show up best on them. Plan the effect the colors will give by first coloring the design pattern. Then use the coloring materials on the leather itself. Colored inks may be put on with a ruling pen from a mechanical drawing set. Of course, only straight lines may be colored with this kind of pen. Colored indelible pencils may also be used; or, the leatherworker may color the bookmark with stain and a small camel's-hair brush. If there are fringes on the ends of the bookmark, cut these with a sharp knife.

Rub the bookmark with wax and polish it with a soft cloth to complete the job.

Book Cover

A book cover acts as a protection for a book while it is being used, and at the same time may be made so that it is an object pleasing to the eye.

The book cover shown on page 67 is for a book 1 1/4″ thick, 5 1/2″ wide, and 8″ high. The cover will fit properly a book of this size and may be used for books somewhat smaller.

Use tooling calfskin or lightweight tooling cowhide. Natural colored leather is best if you intend to color parts of the design. Colored leathers may be used for book covers, using only tooling as a decoration.

Make a full-size heavy paper pattern of the cover part, using the dimensions given on the plate. Make one full-size pocket pattern. Round the corners of the cover pattern and the two corners of the long side of the pocket pattern.

Place the cover pattern on the leather in such a manner that you will not waste any leather when cutting and at the same time have a piece of leather that is free
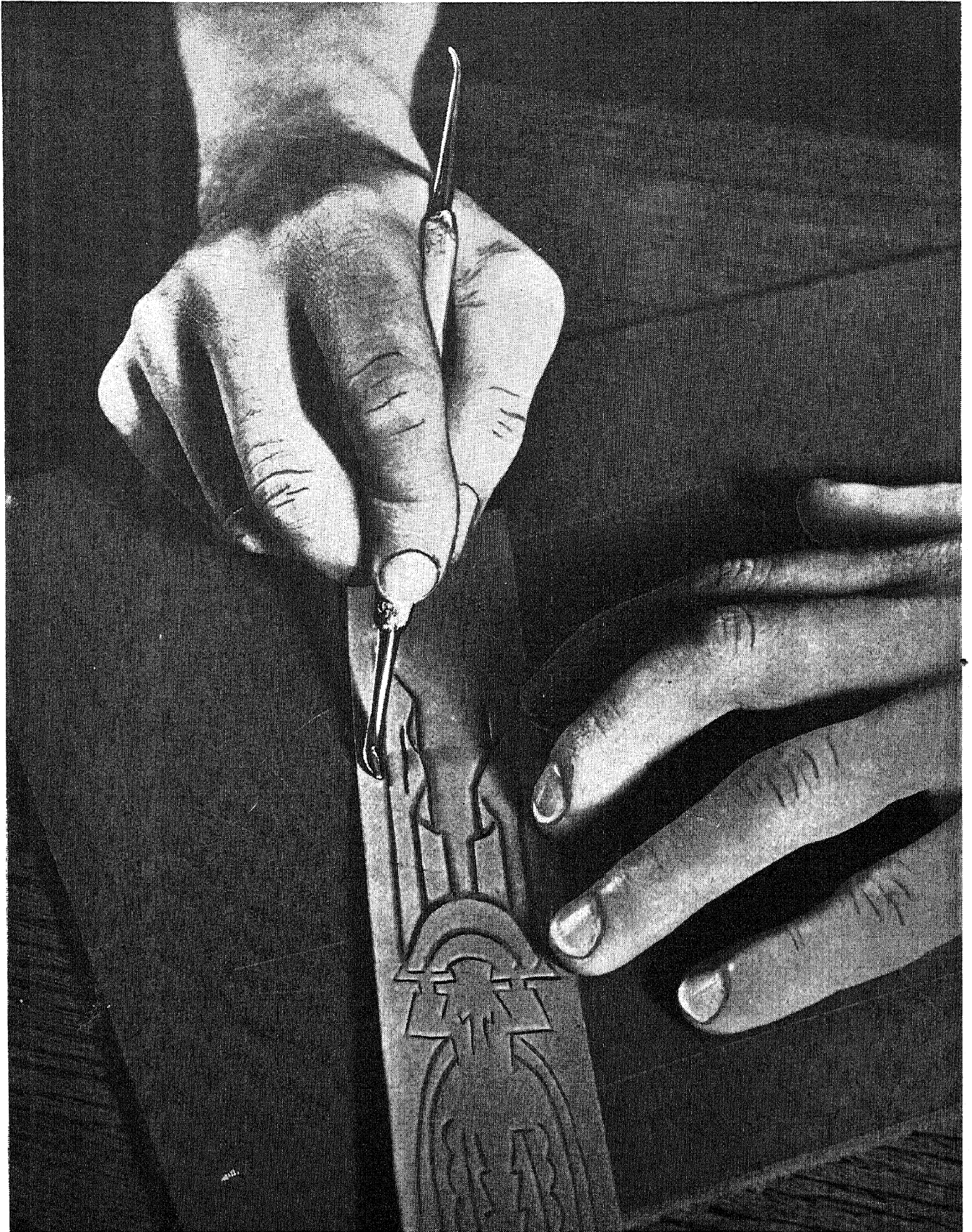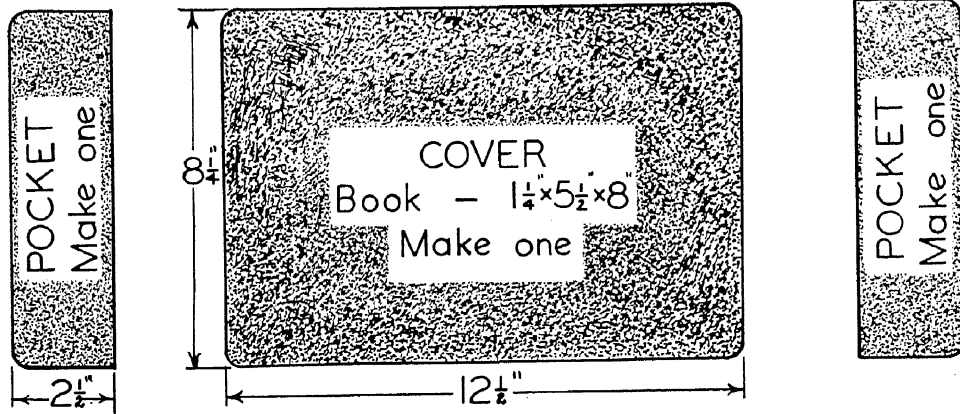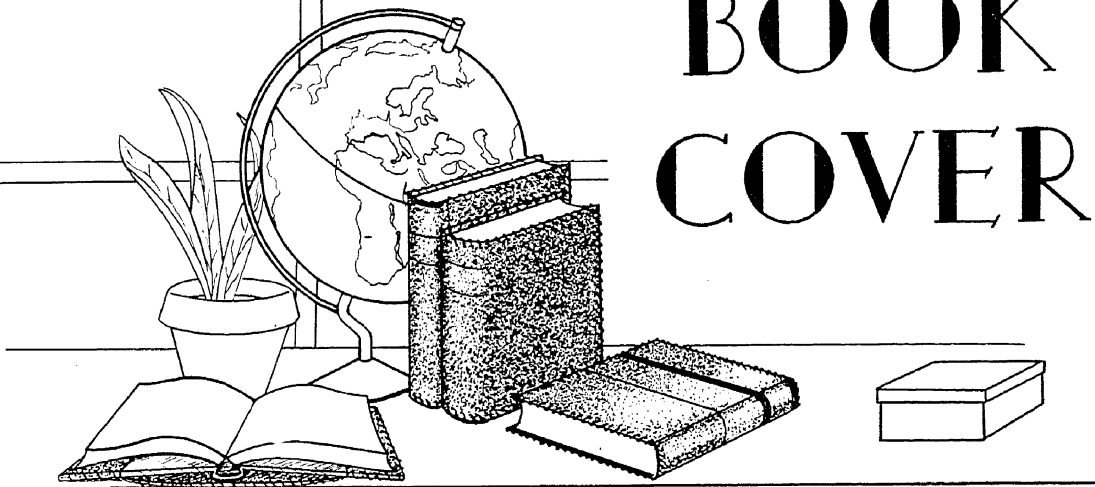
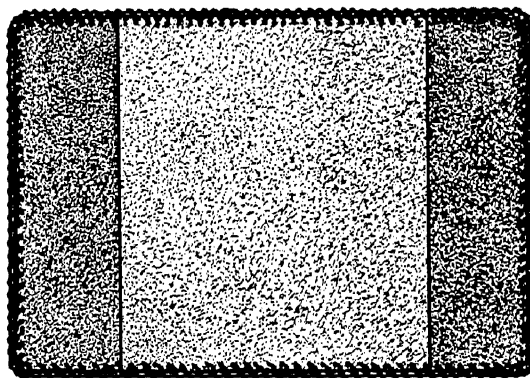**Figure 26.** Stamping a Design in a Bookmark.

Figure 27. Beveling Tooled Lines.

BOOK COVER

POCKET
Make one

COVER
Book — $1\frac{1}{4}"\times5\frac{1}{2}"\times8"$
Make one

POCKET
Make one

$8\frac{1}{4}"$

$2\frac{1}{2}"$

$12\frac{1}{2}"$

Make a full-size paper pattern to trace on leather.

Tool before assembling.

Skive edges and cement pocket in place before punching holes.

Finish with buttonhole stitch.

Plate 20. Book Cover.

from defects. Mark around the pattern with a pencil or awl. Remove the pattern and cut out the leather. Then place your pocket pattern on the leather and mark around it. You will need two pocket pieces, so move the pattern to another place on the leather and mark around it again. Cut out these pocket pieces.

Plan your tooling design and make a pattern on tracing paper. Only the cover part needs to be tooled. Moisten leather. Fasten design pattern to the leather and trace the design. Remove the pattern and complete the tooling; moisten the leather again if necessary. When all the tooling is completed allow the leather to dry thoroughly on a flat surface.

If you are going to color the book cover, coloring must be done after all the tooling is completed and the leather is dry. Follow the instructions given on page 26. Skive the edges of the pockets and the cover where they fit together. Apply rubber cement to the skived edges and cement the pockets in place.

Mark the holes for lacing about $1/4''$ apart and $1/8''$ from the edge and punch the holes. Be sure that you space the holes properly near the corners so that you have a hole exactly at each corner.

Use the buttonhole stitch to lace the book cover. Start lacing at any hole, carefully following the directions on page 34 for starting and making this type of stitch. When the lacing is completed, flatten it by tapping lightly with the mallet.

Any raw edges showing may now be colored with a waterproof ink that matches the color of the leather. To finish the book cover give it a coat of wax and polish it with a soft clean cloth.

This pattern and method are suitable for making a cover to use over a stiff covered ring notebook. You may wish to make the pockets deeper to hold the cover more securely.

A Combination Billfold and Coin Purse

Money carried loosely in the pocket or purse may be lost. A good billfold and coin purse helps you keep your money together.

Make the billfold shown on page 69 of tooling calfskin. Cut a paper pattern slightly larger than the size of a bill. Place this pattern on the leather and trace around it with a pencil. Cut the leather with a sharp knife and a ruler to guide it on the straight lines. Cut the curves with shears.

Probably you will want to tool a design of some sort on the outside of the billfold. Your initials are suggested as a decoration to be tooled into the leather. Make a paper design, dampen the leather, and tool the design. An edge-creasing tool used around the edges will improve the appearance. Stipple the background with the stippling tool.

Fold the billfold along the dotted lines. Then with scissors cut the hole that is shown in the drawing.

Cut the piece for the coin pocket. Skive it on the flesh side where it is to be joined and place the pocket in position inside the billfold. If it is to be laced, punch holes for the lacing with the drive punch; it may be sewed in place. Apply rubber cement to the skived edge and when the cement becomes dull put the pocket in place and press the two parts together. After the cement dries, either sew or lace the parts together. The lacing is done with the in-and-out stitch, and the stitch itself forms some decoration on the outside of the billfold.

Attach the snap fasteners to both the coin pocket and the billfold. Apply wax to the article and then rub it with a soft cloth.

A Two-pocket Cardcase

A cardcase is something you may have use for yourself or perhaps you will want to give it to someone as a present. The one illustrated on page 70 makes a useful and worth-while gift.

Make the case of tooling calfskin or

A COMBINATION
BILLFOLD *and* COIN PURSE

Pocket
(sew or lace
to bill fold)

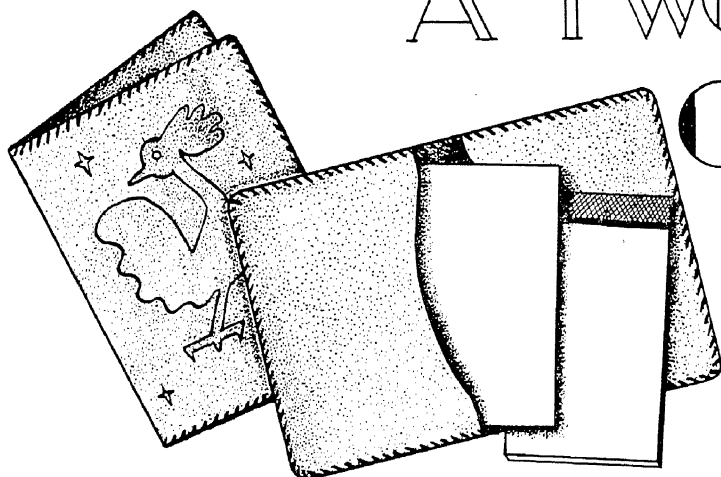Cut hole where
shown to prevent
bulge when folded.
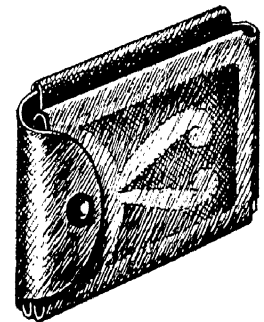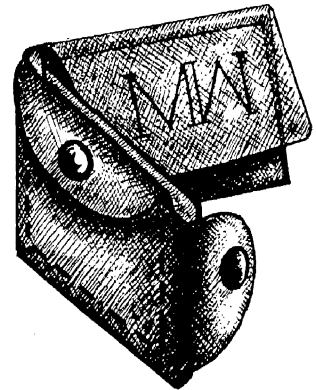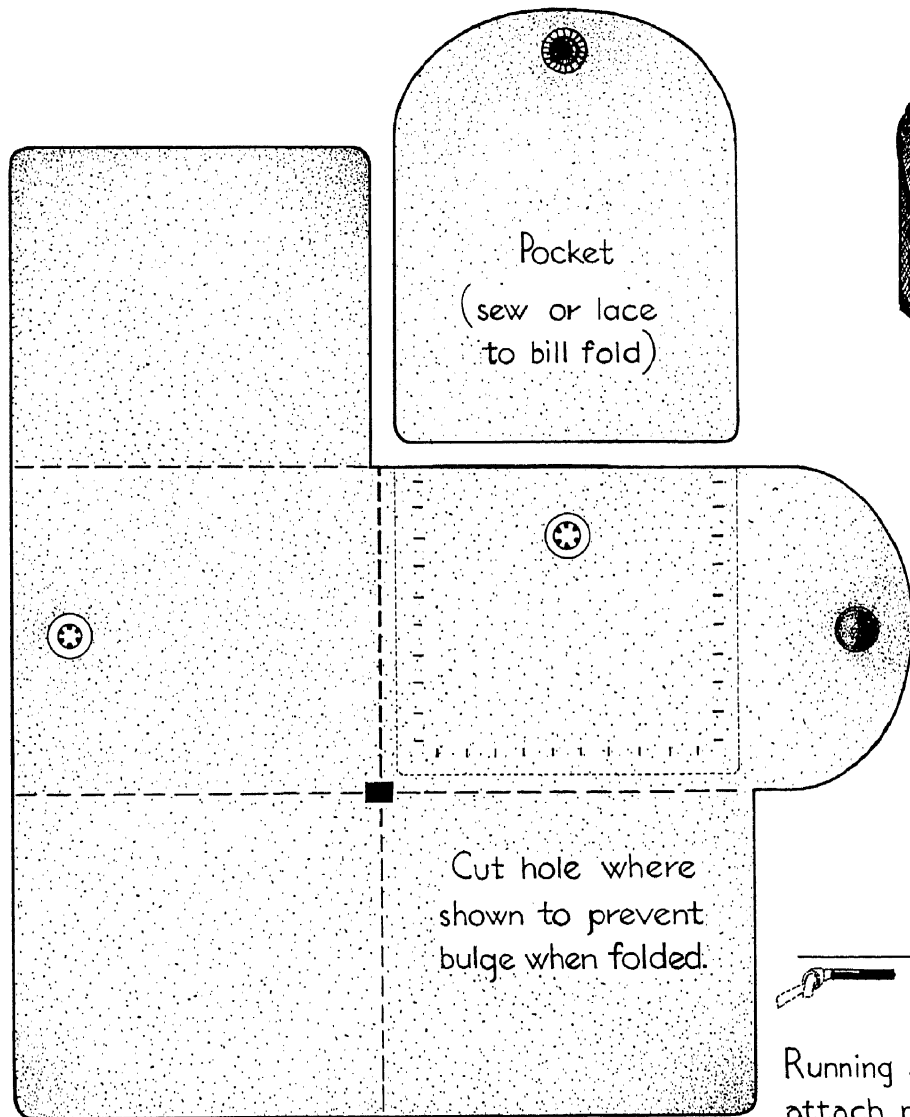
Running stitch used to
attach pocket. Knot ends.

Make paper pattern larger than actual bills. Place flesh side of pocket against flesh side of billfold. Attach button snaps as indicated on pattern.
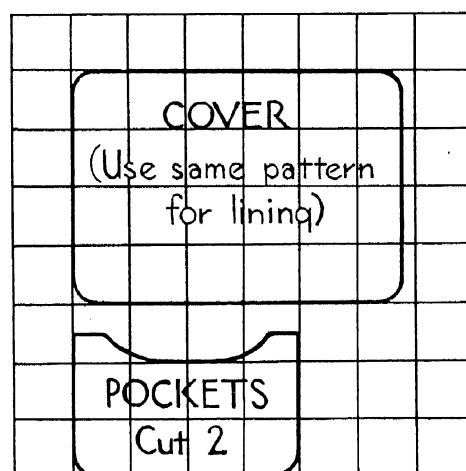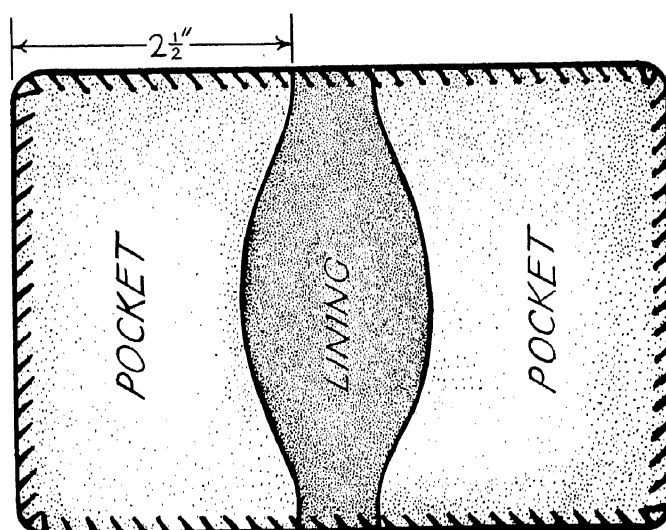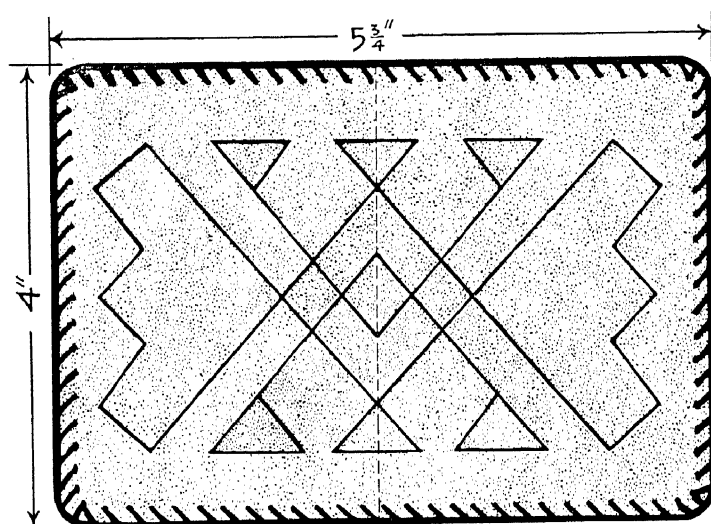
Plate 21. A Combination Billfold and Coin Purse.

A TWO=POCKET CARD CASE

Make case of tooling calf;
use skiver for lining.
After all tooling is done and
leather is dry, skive (bevel)
and cement edges.
Mark and punch holes for
lacing. Finish by lacing, using
any stitch desired.

5¾"

4"

2½"

POCKET

LINING

POCKET

COVER
(Use same pattern
for lining)

POCKETS
Cut 2

Lay out pattern on squared
paper, using 1" squares.

Plate 22. A Two-pocket Cardcase.

cowhide. The size is 4″ wide by 5 ¾″ long when laid flat. Make a paper pattern according to the outlines shown in the illustration. The case and the pockets are made of the same kind of leather. For the lining, use a thin morocco or you may use smooth skiver if you wish.

The outside of the case is decorated by a tooled design. Use the design shown in the drawing or make one of your own. Dampen the leather thoroughly and place the design over it. Go over the lines carefully, using the pointed end of the modeling tool and a ruler to guide it. Remove the paper pattern and go over the lines again to make them stand out more clearly.

When the leather is dry, lay it flesh side up and skive the edges all the way around; also skive the edges of the pockets where they are to be laced to the case. This makes the edges of the article thinner and gives it a neater appearance.

Coat the skived edges of the case with rubber cement. Place the lining over it with the grain side out. Then fold the case in the center. Carefully smooth out any wrinkles in the center fold or at the edges. Put the two pockets in place after coating the edges with rubber cement.

The next step is to mark and punch holes for the lacing. Use a spacing wheel with a ruler to guide it and make marks ⅛″ from the edge along the four sides. Then mark the holes on the rounded corners, using a pencil or awl.

Start about an inch from one of the corners and lace the case all the way around. Use lacing 3/32″ wide and about 60″ long. Pull the lacing snugly against the edges. If two pieces of lacing are to be joined, skive an end of each piece, apply rubber cement to each, place them together and hold for several minutes until the cement is dry. Carefully hide the ends of the lacing.

Take a cloth with a little wax on it and rub the cardcase all over. This gives a finished appearance and helps protect the leather. The case is then ready for use.

Cigarette Case and Matchbook Holder

Of course you boys and girls do not need a cigarette case, but one would make an acceptable present for your father or older brother.

Use tooling calfskin or thin cowhide to make the case. Make a pattern, using the dimensions given in the illustration on page 72. Cut and then dampen the leather; tool lines on the flesh side where the folds are to be made. These lines will help in making satisfactory folds.

You will probably want to decorate the case in some manner. The case may have a stamped or a tooled design. First make a paper pattern of the design and then transfer it to the dampened leather. If you are stamping a design in the case, be careful to make each stamp mark exactly where it belongs. You may wish to use one or more stamps in combination. Avoid striking the stamp too hard, since the leather might be cut clear through.

Two slits are cut across the back side of the case. The match book case is held in the cigarette case by slipping it through these slits. Use a sharp knife to cut them and be careful not to cut too far.

Punch holes for lacing the edges of the case. Be sure the holes are spaced correctly so that when the case is folded the holes are opposite each other. You may use either a drive punch or a spring punch for making the holes.

Select a piece of lacing of the same shade as the case or a contrasting shade and lace the edges and ends. Use the whip stitch. Complete the case by attaching the snap fasteners to it.

Cut the piece of leather for the **matchbook holder.** Dampen the leather and decorate it in the same way as you did the case. Attach the snap fastener. Then cut the piece for the loop and stitch it to the match holder as shown in the drawing. Slip the holder through the slits in
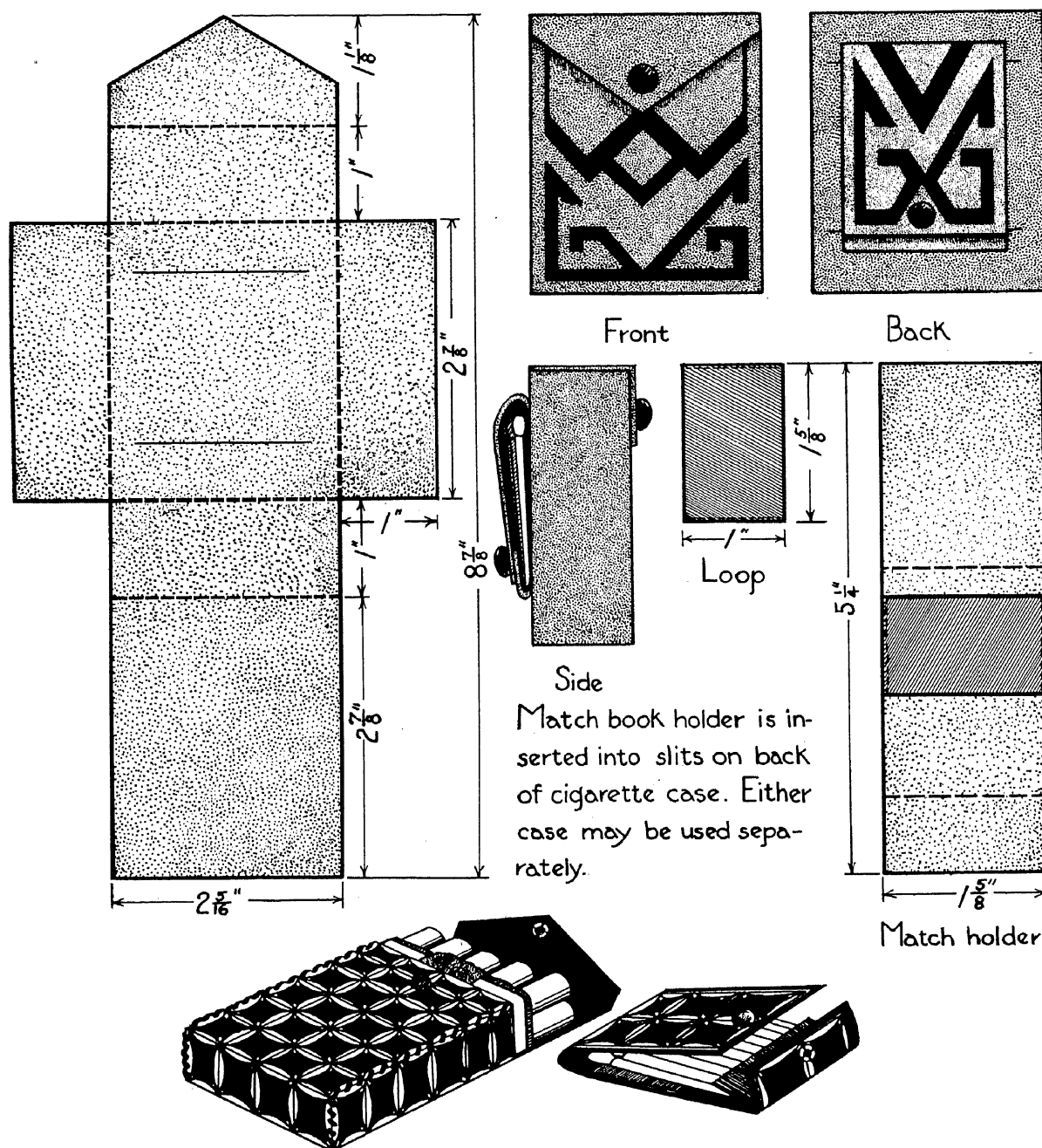
CIGARETTE CASE AND MATCH BOOK HOLDER

Front

Back

Side

Loop

Match book holder is inserted into slits on back of cigarette case. Either case may be used separately.

Match holder

Plate 23. Cigarette Case and Match Book Holder.

the back of the case and the case is ready for use.

The two pieces, the case and the match-book holder, can be used separately.

A Double-pocket Leather Frame

A picture frame like that illustrated on page 74 looks well on the table or mantel. It would make an attractive gift for anyone who likes to carry pictures of his family.

Make this frame of dark brown Russian calfskin. Three pieces of leather are needed. The outside piece is 5″ wide and 8⅜″ long. The two inner pieces are each 4″ wide and 5″ long. Cut the three pieces carefully, making sure that the corners are right angles.

The outside of the frame is plain or undecorated. The inner pieces or the pockets are to be tooled. The design shown in the drawing may be used or a different pattern may be planned. Lay out the design pattern on thin tracing paper.

Dampen one of the inside pieces of leather and transfer the design to it, using the modeler. Then with the leather still damp, go over the design again with the modeling tool to make the tooling stand out plainly. Decorate the background in some manner. The stippling tool or the point of the modeling tool may be used for decorating the background.

Tool and decorate the other inside piece in the same manner. Now proceed to skive both ends and one edge of each inside piece. Also skive the outside or cover piece where the inside pieces are to be laced to it. The skiving is done on the flesh side. Mark the locations of the lacing holes, using the spacing wheel and a ruler for a guide.

A window is to be cut in each of the pockets; the size of the opening is 2½″ wide by 3½″ long. Carefully mark the lines for the window in each piece and then cut out the opening with a sharp knife. Be careful in cutting the inside corners.

Mark and punch the lacing holes around the window opening. Lace these edges first. Use 3/32″ lacing of a contrasting color and lace with a whip stitch. The inside edge of each pocket may also be punched and laced at this time.

Cement the skived edges on the two pockets and the outside piece. Place the pockets in position on the outside piece. The holes have already been marked; now punch them with the drive or the spring punch. Start at one corner and punch six or seven holes. Lace these holes, then punch six or seven more and lace them. Punching and lacing in this way helps to hold the pieces of leather in place without any slipping and results in a neat job.

Polish the leather frame with wax and a soft cloth. Cut the pictures that are to be put in the frame so that they will fit inside the pockets and show through the windows. Clear sheet celluloid or cellophane placed over the pictures will protect them.

Pocket Case

A pocket case is a useful article in which to carry such things as licenses, cards, and identification pictures.

Make the case shown on page 76 of dark, smooth tooling calfskin. For the outside or cover, cut a piece 6 ⅞″ wide by 8″ long. This piece should be slightly thicker leather than the inside pieces. Decorate the cover in some such manner as shown. A metal stamping tool is used. It may be one you have bought from a store or one that you have made for yourself.

As with other types of decoration, first make the design pattern on thin paper. Draw guide lines for placing the metal stamp and mark the space that each imprint of the stamp needs. You may have to move the lines slightly so that the stamped design will fit at the corners.

Dampen the leather and place the pattern over it. The design can be stamped lightly through the paper. Then it should

DOUBLE POCKET
LEATHER FRAME
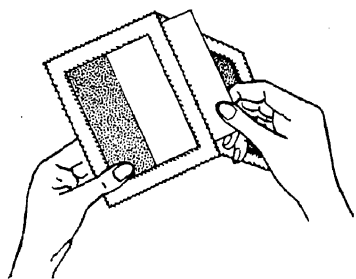
Use Russian calfskin for tool-
ing. Skive all edges that are
to be laced together.   Be
certain that punched holes
in pockets and back meet.

Leather pocket and window

Lace inside edges of pockets before lacing three pieces together
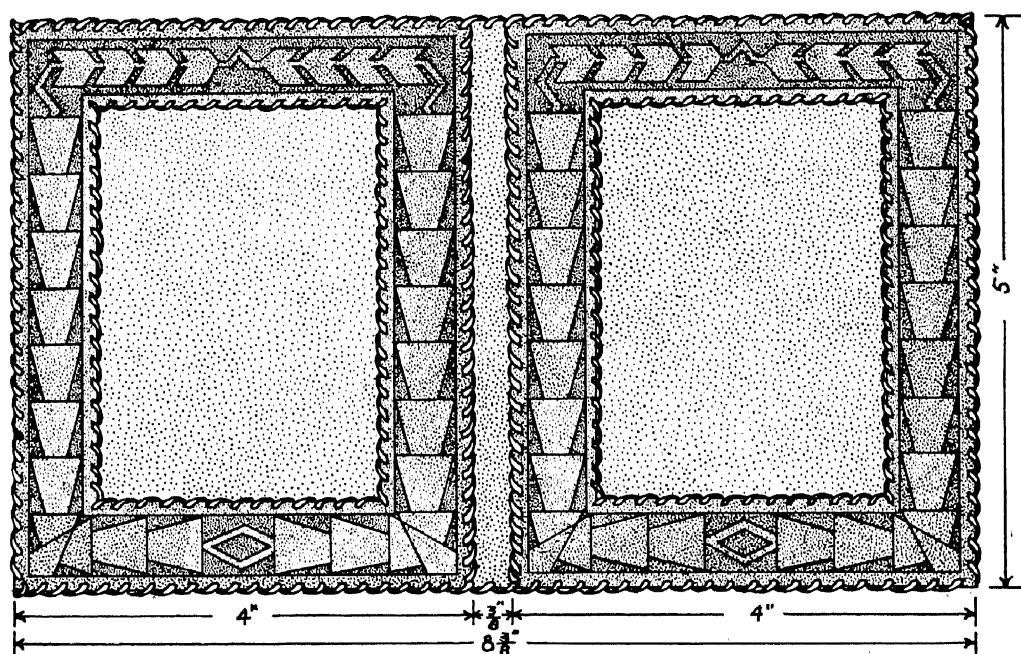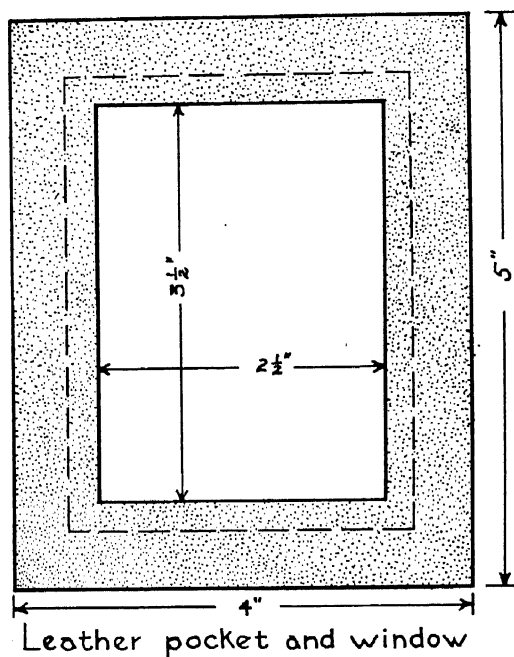
Plate 24. Double-pocket Leather Frame.

be gone over again with the pattern removed. Be sure to place the stamp exactly in the impressions first made. Hold the stamping tool vertically and tap it only hard enough to leave a clear mark. When the leather cover is dry, skive the edges where the pocket and frame are to be joined to it.

Make paper patterns for the two pocket pieces, cut them out, and skive them where they join the outside or cover piece. These pieces should be made of thinner leather than the cover. Place the card pocket over the letter pocket and stitch them together along the dotted line either by hand or on the sewing machine.

Make the window frame from the same kind of leather as the pockets. Cut out a paper pattern according to the dimensions shown on the plate on page 76, then use the pattern to cut the leather to size. Also cut a piece of lining leather to the same dimensions but **do not** cut window openings in this piece.

Both the piece of lining leather and the window frame are to be folded to form a narrow hem on each. The line of the fold is indicated by the dotted line in the drawing. The edge of the window frame piece should be skived in order to make a thin hem. Before cementing the hem on the frame, cut a piece of celluloid slightly smaller in size than the leather. Apply cement to the flesh side of the frame and cement it to the celluloid. Then cement the hem, enclosing the celluloid. When this has been done fold and cement the hem on the lining leather, place the two pieces of leather together with the celluloid between and stitch them along the dotted line shown in the drawing.

Cement the skived edges of the pocket, the frame, and the cover where they are to join. Place the parts together, and mark and punch the holes for the lacing.

Lace the edge, using 3/32″ lacing of either a contrasting color or the same color as the leather. You might try lacing this pocket case, using the buttonhole stitch. This stitch is a little harder to make than some of the others but you'll like it better. Look on page 34 to see how the buttonhole stitching is done. You will need a piece of lacing six times as long as the distance to be laced.

Polish the leather, and the case is ready to be used.

Snapshot Picture Frame

Snapshots and photographs are always popular in the home. You will want to make one or more of these frames for your favorite pictures.

Use calfskin, tooling cowhide, or morocco leather for the frame. Cut the leather 4″ wide by 5″ long. The window is 2½″ wide by 3½″ long. Do the cutting with a sharp knife and use a ruler to guide it.

Make a paper pattern of the same size as the leather. On this pattern make the design that is to be stamped into the leather. Strike the stamping tool lightly so that it leaves an impression in the paper. Go over the whole design this way to find out if the stamp ends correctly at the corners. There should be no overlapping nor any space between stamped marks.

Wet the leather on the flesh side and when the grain side is thoroughly dampened lay it on a piece of glass or linoleum. Place the paper pattern over it, then go over the design, using the stamping tool. Remove the paper and go over the design again. Strike the tool hard enough to make a clear impression but not so hard that the leather is cut. Make sure the tool is held vertically and that it is put back exactly into the impression. When the leather is dry turn it over and skive the long edges and one end.

Make the back of cardboard 4″ wide by 5″ long. A second piece cut to the dimensions shown on page 77 is needed for the **easel** or stand.

Cut one piece of lining leather or skiver ¼″ larger all around than the back; two pieces of leather are needed for covering

POCKET CASE
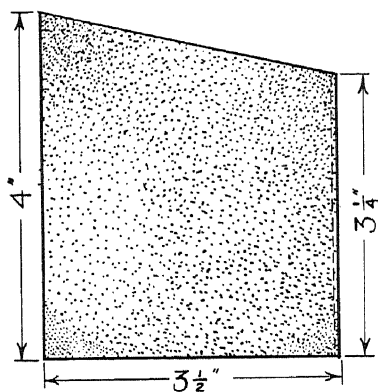
Card pocket
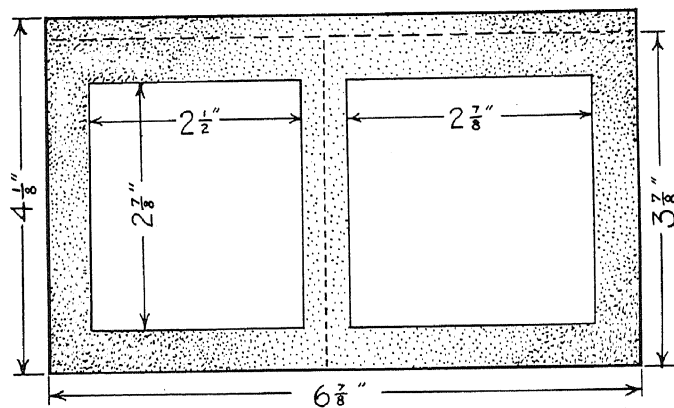
Photograph and identification window frame.
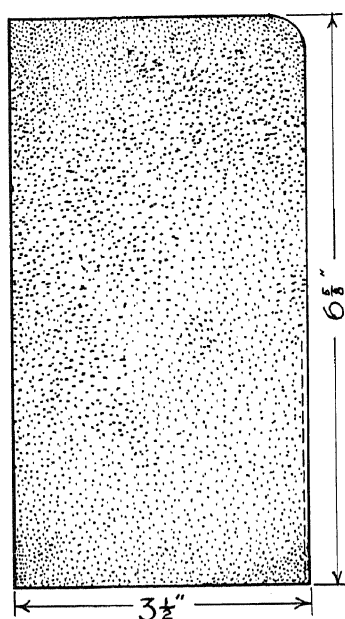
Letter pocket
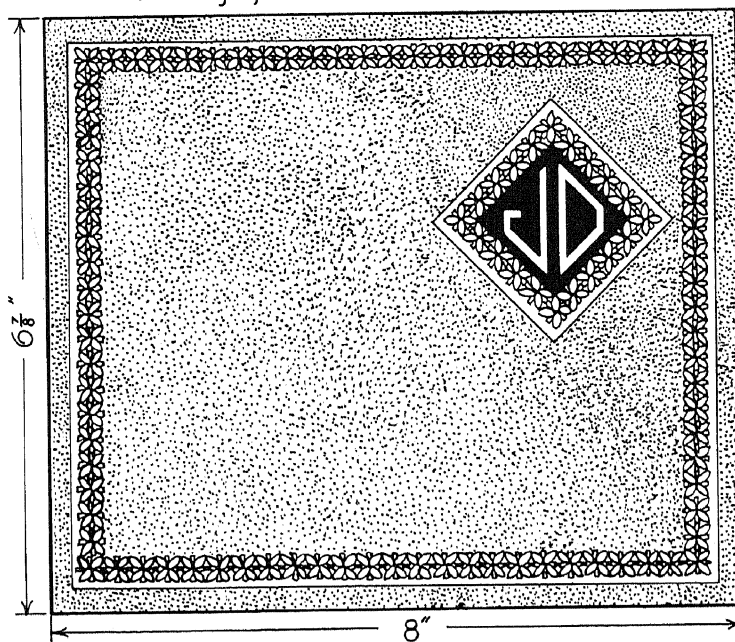
Cover with suggested design for stamp tooling.

Plate 25. Pocket Case.

SNAPSHOT PICTURE FRAME

After cardboard back is lined and standard added the front is laced to it on three sides leaving the bottom open for insertion of window and picture.
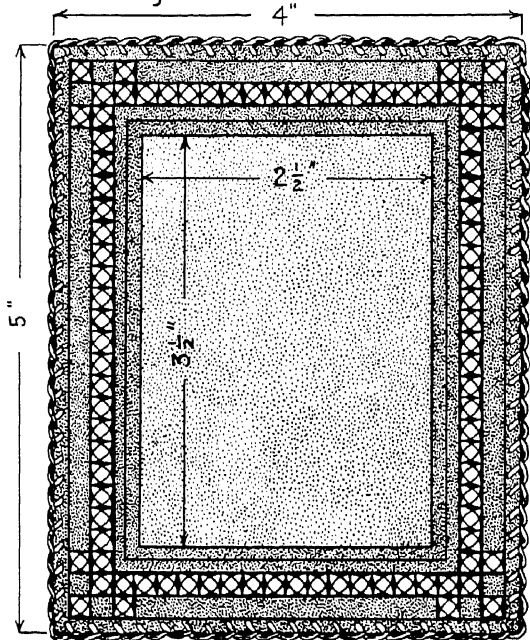
$4\frac{3}{4}$"

$4\frac{3}{8}$"

$\frac{1}{2}$" 1"

$2\frac{3}{8}$"
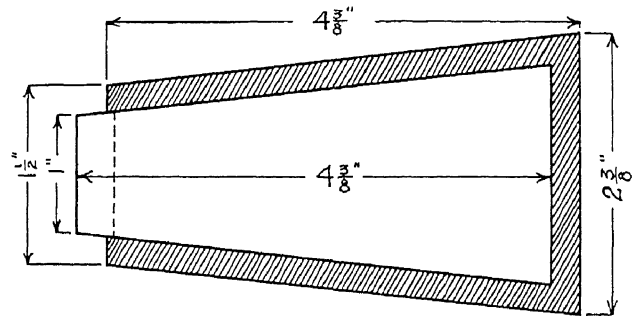
Cardboard and outside lining.

$4\frac{1}{8}$"

$1\frac{3}{4}$"

1"

$\frac{1}{2}$"

$2\frac{3}{4}$"

Ribbon support.

$4\frac{1}{2}$"

4"

1"

slot

5"

$5\frac{1}{2}$"
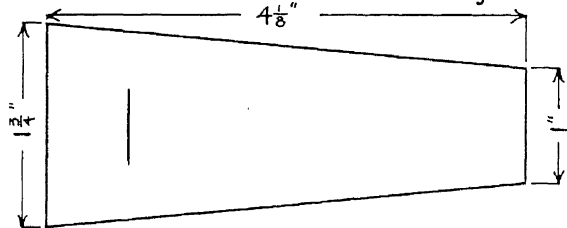
Inside lining of standard with slot.

4"

$2\frac{1}{2}$"

5"

$3\frac{1}{2}$"
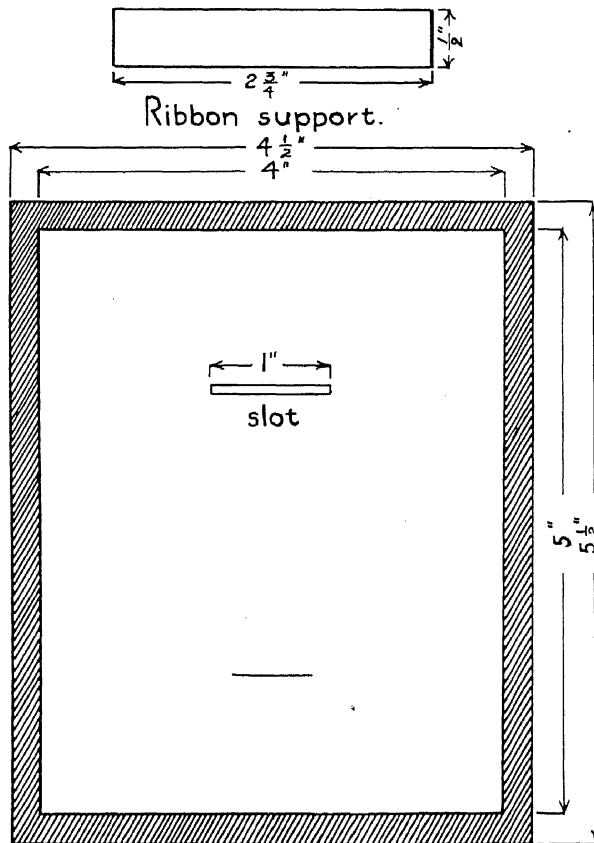
Back showing cardboard and lining.

Suggested design for stamp tooling.

Plate 26. Snapshot Picture Frame.

the easel. Imitation leather may be used to cover the cardboard back and easel if you care to use it. Coat the cardboard pieces with rubber cement and lay the lining in place. Carefully smooth out the linings so that there are no wrinkles or air bubbles.

After one side of the easel stand has been covered, mark and cut the slot for the ribbon. Insert an end of the ribbon and cement a 1/4″ flap in place. Then cover the other side with the lining.

Make the 1″ slot shown in the cardboard back. Push the upper end of the stand through this slot and cement it in place. Also make a slot for the ribbon and cement it in the back of the frame.

Lay the leather frame flat and mark the positions of the holes for the lacing; have them 1/8″ from the edge and about 1/6″ apart. The spacing wheel may be used for marking, since the lacing is all in straight lines. Make sure the holes are spaced equally at the corners. You may have to space those near the corner slightly more or less than the others in order to have them end correctly.

Punch the holes with the thonging chisel or the spring punch. The back may be put in place and the holes punched through both at the same time. **Do not punch holes in one end of the back piece.** Use a piece of lacing 3/32″ wide and lace the frame all around, using the buttonhole stitch. Remember that the back is laced to the frame only on two sides and the top. The bottom is left open so that the picture and celluloid window may be put inside.

Complete frame by waxing and polishing it.

Modeled Book Ends

Books can give us enjoyment that we cannot get in any other way. They can take us to far-off lands and they can tell us of bygone days. Books have been called our most treasured possessions. You can keep the books on your desk in order if you have a pair of book ends.

Wood and Metal Book Ends

The ones shown in the drawing on page 79 are rather easy to make. Make your design pattern first. Then lay the pattern over a piece of wood 1/2″ thick and trace around it with a pencil. Two pieces of wood are needed since there are two book ends. The grain of the wood should be lengthwise of the pattern.

Use a coping saw to cut out the two pieces of wood. When they are cut, smooth the edges carefully with a file. Then sandpaper the edges, using No. 0 sandpaper wrapped around a flat stick or the file. Cut two pieces of sheet metal 3″ by 3 1/4″. Smooth the edges with emery cloth. Drill two 1/8″ holes 2″ apart in each piece of metal, then use a 3/8″ drill to countersink the holes. This makes room for the heads of the screws and allows the book end to set flat. Fasten the metal to the wood with 3/4″ No. 6 flathead wood screws.

You may use modeling sheet for covering the outside surfaces of the book ends; these are specially treated papers that can be worked up much like leather. Many handicraft supply stores carry it in stock.

After you have made a suitable design on paper, dampen thoroughly the modeling sheet and place the pattern over it. Tool the lines of the design with the pointed end of the tool. Then hold the modeling sheet over the edge of the table so that you can emboss the raised portions of the design. Hold the sheet with the left hand and do the embossing with the right hand. Use the ball tool or the broad end of the tool. Do not try to raise any parts of the design too high, since it may become flattened when the book end is in use. Remember that all parts of the design are not to be raised the same amount; some portions are raised just a small amount, others to a greater height.

When the embossing is finished, lay the sheet on a piece of glass or linoleum and go over the lines with the pointed tool. This makes the lines clearer and causes

MODELED BOOK ENDS

escutcheon pins
modeling sheet

← $\frac{1}{4}$" pine

$5\frac{3}{4}$"

$3\frac{1}{4}$"x3" 20 gauge
sheet metal

$\frac{3}{4}$" screw

SECTION VIEW

1" — $3\frac{1}{4}$" — 1"

$5\frac{1}{4}$"
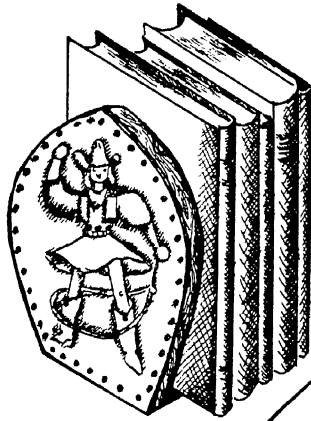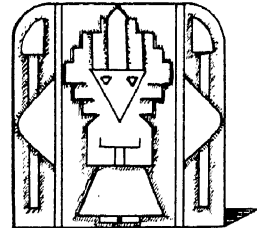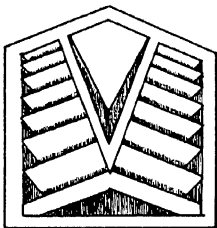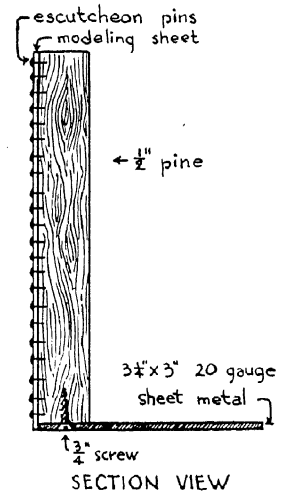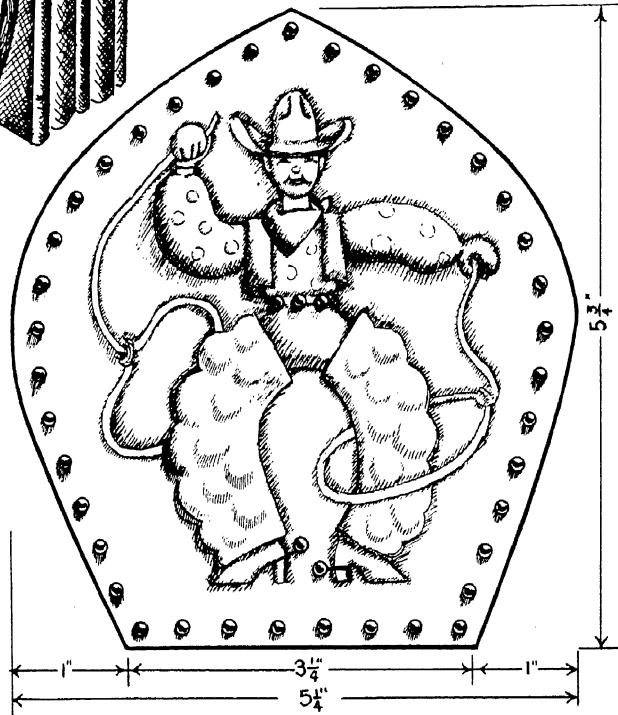
Suggested shapes for bookends. Backing may be cut from wood or metal.

Plate 27. Modeled Book Ends.

the embossed design to stand out better.

The modeling sheet should now be decorated with bright-colored paints or enamels. The colors improve the appearance of the book ends. Stir the lacquer or enamel thoroughly, then apply it to the design with a small brush. Be careful that the colors do not run together. It is best to allow each color to dry hard before applying the next. This is especially so if different colors have to touch one another. When all of the colors are dry, coat the book ends with clear varnish or lacquer.

When you are through with the painting, clean the brushes out. Clean the lacquer brushes in lacquer thinner; use turpentine for the enamel brushes.

Next lay the modeling sheet on the wood. Nail it in place, using 1/4" brass escutcheon pins. Space them about 3/8" apart and 1/4" from the edge.

All Metal Book Ends

Another type of book end can be made. This is made from a piece of metal bent at a right angle. The upper portion has the shape of the design and the bottom is rectangular.

The design is made on the modeling sheet which must be about 3/16" larger all around than the metal. Also make an inside piece the same size. Mark and punch holes for the lacing. Place the two pieces over the metal with the design to the outside. Lace the edge all around, using the whip stitch. The modeling sheet may be colored to bring out the design.

Bridge Case

Everyone likes to play games, young and old alike. Some prefer out-of-door games, especially when the weather and surroundings are suitable. Others like to play indoor games. These games are fun, too, and provide many hours of enjoyment for those who play them. Many indoor games require cards of some kind as part of the game; a great many games can be played with cards alone.

Playing cards originated a long time ago, and have come to us from the Orient through the countries of Europe. A large variety of games can be played with the ordinary deck of cards. Some card games such as solitaire may be played by one person, but most are played by two or more. This makes them more fun since we usually like to have others enjoy our good times.

Whatever games you play with cards, a case of some sort helps to keep them together. You can make the card case shown on page 81 for your own cards or as a present. Maybe it could be used as a prize at a bridge party.

Make the outside case from tooling calfskin or cowhide. The drawing shows the dimensions for making the pattern. Make the pattern on paper, lay it on the leather, and cut along the outer lines, using a sharp knife with a ruler as a guide.

Also make a design pattern. Place it on the dampened leather and go over the lines with the point of the modeling tool. When the paper is lifted go over the lines again to make them clearer. Also, on the flesh side, tool along the dotted lines. You might try stippling the background leather with either the stippling tool or with sandpaper.

When the leather has dried make the location marks for the lacing holes. The spacing wheel can be used since the edges are straight. Be careful to make the marks 1/8" from the edges. Punch the holes with the spring or the drive punch.

Fold the edges together to form the case. Then start at one corner and lace the edges together using 3/32" lacing. The whip stitch is used. Attach the snap fastener and the outside case is complete. The case should be waxed and polished.

This leather case makes an attractive container for small articles if the inner case is removed.

The inside or removable case is made from cardboard and then covered inside and out with lining leather or with book-

BRIDGE CASE

Removable case for cards is made of cardboard and covered with lining leather. Additional space in cover allows for bridge pad. Punch holes on all sides of case where edges are to be joined or lacing is used for finishing.
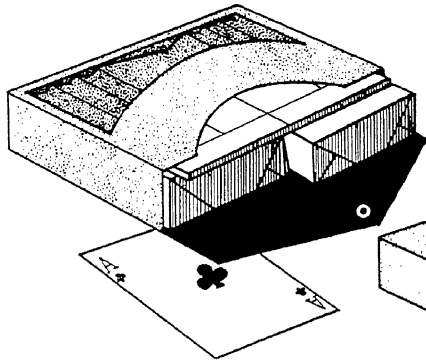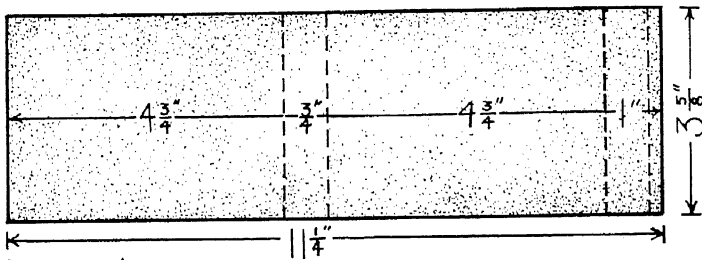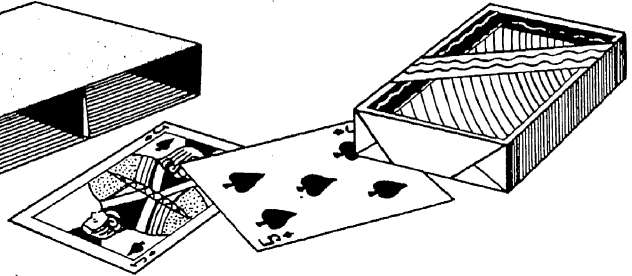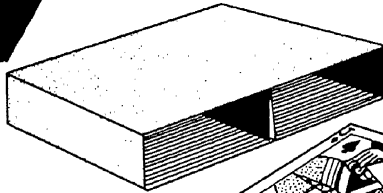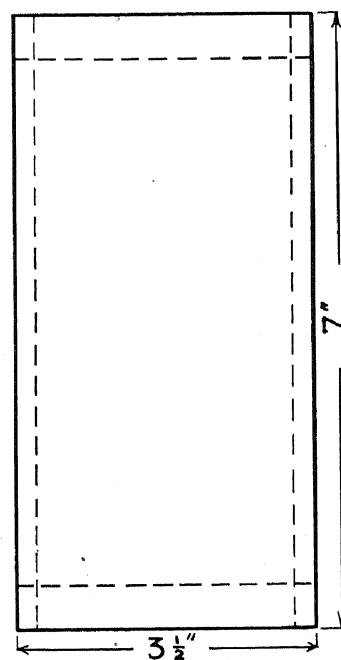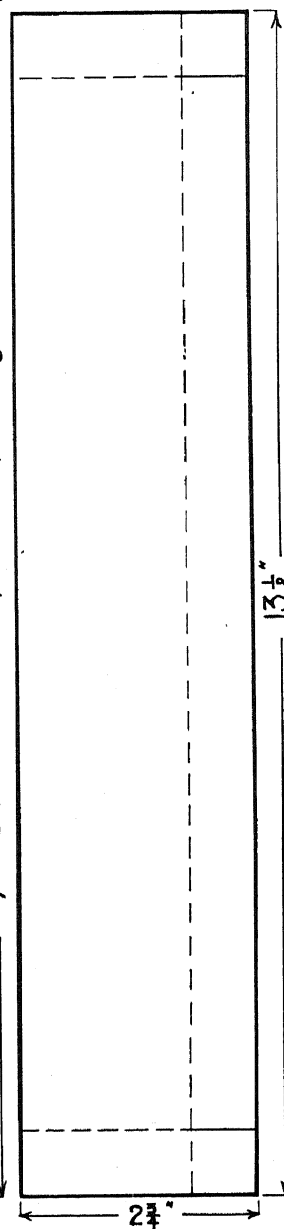
Lining leather for outside of cardboard case.

$4\frac{3}{4}$" $\frac{3}{4}$" $4\frac{3}{4}$"   1"

$3\frac{5}{16}$"

$11\frac{1}{4}$"
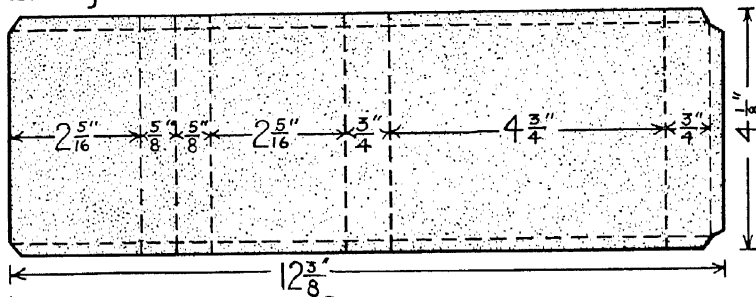
Inside lining leather. Dotted lines indicate folds.

$2\frac{5}{16}$" $\frac{5}{8}$" $\frac{5}{8}$" $2\frac{5}{16}$" $\frac{3}{4}$" $4\frac{3}{4}$" $\frac{3}{4}$"

$4\frac{1}{8}$"

$12\frac{3}{8}$"
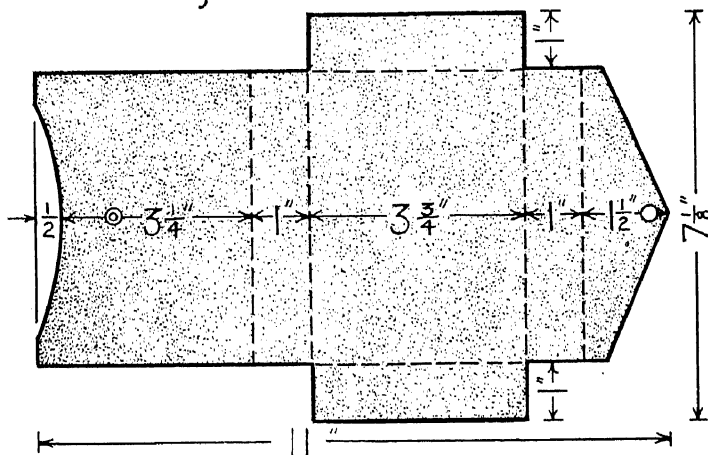
Tooling leather. Punch holes along heavy lines.

$\frac{1}{2}$ $3\frac{3}{4}$"   1" $3\frac{3}{4}$"   1" $1\frac{1}{2}$"

$7\frac{1}{8}$"

11"
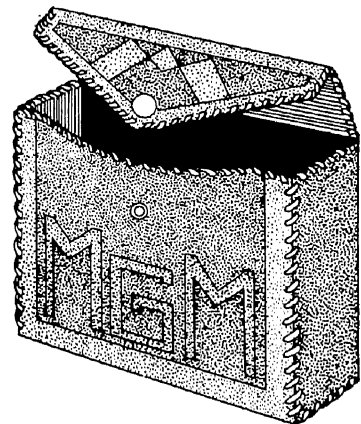
Outer case

Plate 28. A Bridge Case.

DESK SET
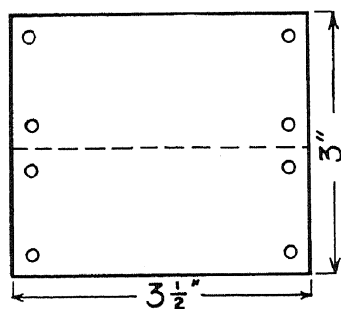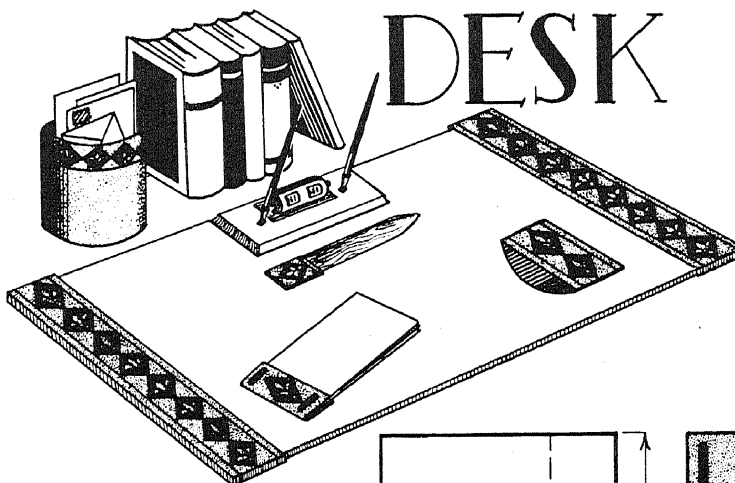
Pattern for holder

3"

3½"

13½"

7"

3½"

2¾"

Metal blotter cover

Large blotter end
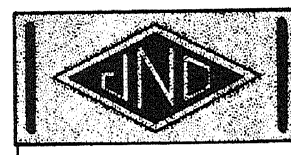
Tooled blotter holder
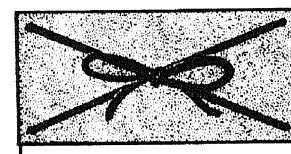
Tie decoration
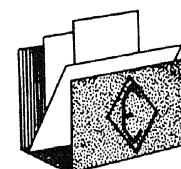
Covered metal strip
bent to shape
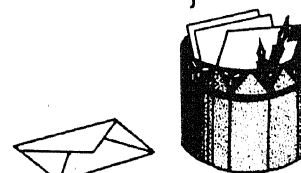
Covered carton
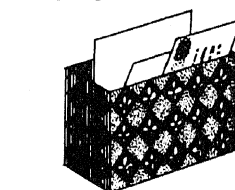
Covered box

Styles of letter files

Plate 29. Desk Set.

binding cloth. Cut the two pieces of lining leather according to the dimensions shown on page 81.

The width of the cardboard for the box is 3 5/8″ and the length 12 3/8″. Cut the cardboard carefully with a sharp knife. Make a light cut in the cardboard wherever a fold is to be made to form the corners and the center divider. Remove the outer layer of cardboard from the end tab. This makes a thinner joint.

Apply cement over the whole inside surface of the box and place on it the inside lining leather. Work out air bubbles and wrinkles. Cement the tabs along the edges, fold the lined box into shape, apply glue along the tab, and hold it in place. A rubber band around the box will hold it until the glue dries.

Now cut a piece of lining leather or bookbinder's cloth to cover the outside. Coat it with glue and place it around the box.

Place two decks of cards in the removable case, put a bridge pad on top, and put them into the outer case and you have an attractive and useful gift.

Desk Set

A leather-bound desk set is usually a welcome article for the desk; it is a decoration that is useful.

Make the leather parts of thin tooling calfskin or cowhide. Cut the two pieces for the ends of the **desk blotter, 2 3/4″** wide and 13 1/2″ long, as shown on page 82. Make a paper design pattern. Use one of the designs illustrated or work out one of your own. Dampen the leather and transfer the design onto it using the pointed end of the modeling tool. Go over the lines again when the paper pattern has been removed.

If you have used the design shown on the left of the drawing, then the petals should be embossed. To do this hold the leather on the table so that the part to be embossed extends over the edge. Press the leather up from the flesh side using the broad end of the tool or a ball tool. The lines on the grain side may have become faint while the embossing was being done. Go over any of them that do not show up clearly, using the pointed modeling tool. Make both end pieces in this manner.

Cut a piece of cardboard 12 1/2″ wide and 20″ long for the **blotter pad base.** Bind the long sides with a piece of thin lining leather, skiver, or imitation leather. This keeps the edges from fraying.

Slit or cut the corners of the leather ends as shown. Then attach the ends to the blotter pad by folding the hem and gluing it to the cardboard. Complete the folding and gluing. The leather is glued to the cardboard only on the underside. This forms pockets for the blotter on the top side. Put weights on the pad while the glue is drying.

Next make the leather cover for the small **curved metal blotter.** This cover is made to a size slightly larger than the top of the blotter holder. This is so the leather can be folded over the edges and cemented to the underside. The decoration on the cover should be the same as that on the end of the blotter pad. Attach the leather to the metal using thickened shellac or varnish. Roughen both leather and metal with sandpaper. Spread the shellac evenly on the leather and then place the leather on the blotter holder. Press out any air bubbles or wrinkles that appear.

A small **leather folder** in which small blotters may be laced can be used if you do not have a curved metal blotter holder. The drawing on page 82 shows the size of this holder. Decorate it in a manner to match the large blotter pad. Fold the holder and punch the holes for the lacing. Cut three or four blotters to the size you want, place them in the holder and punch the holes. Lace the holder and the blotters, using a piece of 3/32″ lacing.

The **letter holder** is made of a piece of sheet metal covered with thin leather.
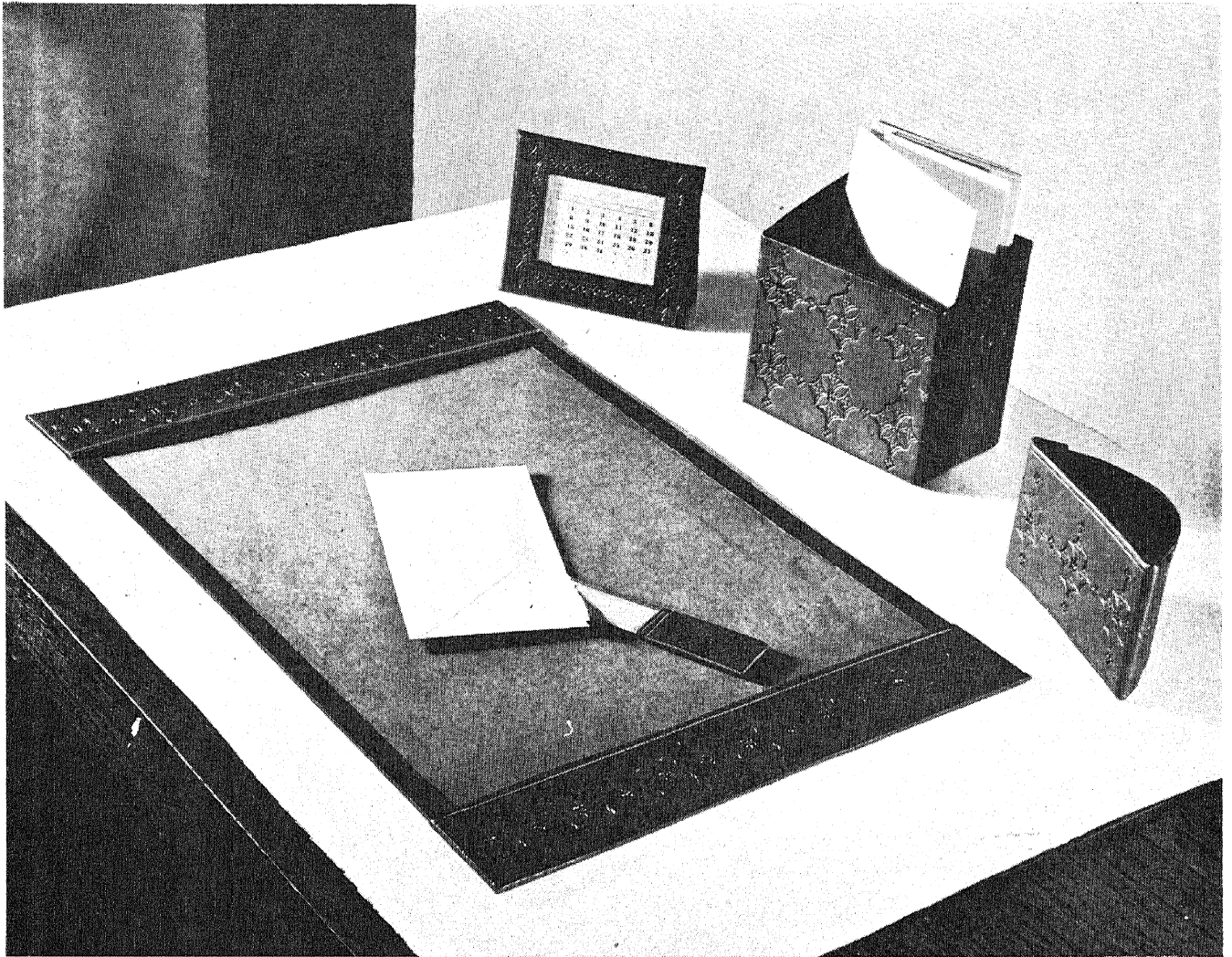
Figure 28.   Tooled Leather Desk Set.

The one shown on page 82 may be made from a piece of metal 5″ wide and 8½″ long. The front is 3″ high, the back is 4″ high, and the bottom is 1½″ wide. Do not use tin plate which is the metal from which tin cans are made. This is too thin and bends easily. Galvanized metal or black iron should be used.

Coat the flesh side of the leather covering pieces with shellac and place the pieces over the metal. Smooth out all bubbles or wrinkles.

The **boxes** that are shown on the drawing may be made next. Use a strong cardboard box, either round or rectangular. Use thin leather for covering the box. Cut the pieces to the correct size and decorate them in the same design as the other parts of the desk set.

Measure the distance around the round box with a strip of paper wound on it. Mark the end of the strip, then when it is opened up it can be laid on the leather. When the leather has been decorated it is glued to the box. Use either leather cement, rubber cement, or ordinary glue. Line the inside of the box first. Then put on the outside piece with a narrow strip remaining at the top of the box. Fold this strip inside to cover the edge of the box.

Rub all the leather parts of the completed set with a soft cloth on which is a small amount of wax.

Sandals

Decorated leather sandals like those shown on page 85 are suitable for wearing in the home. They can also be worn

SANDALS
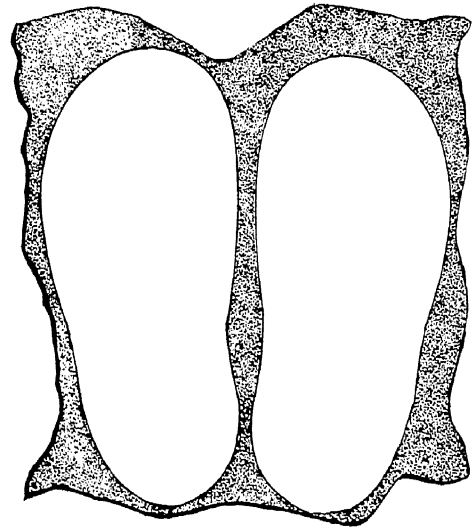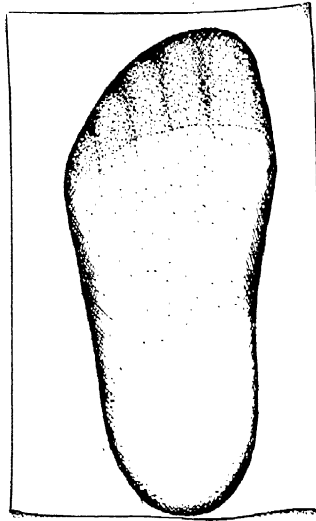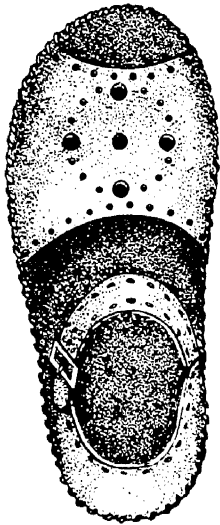
1. Trace around the foot. Hold the pencil vertically.

2. Cut two soles, reverse the pattern for the other foot.
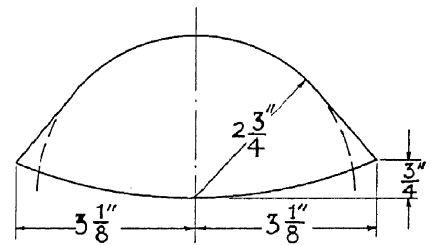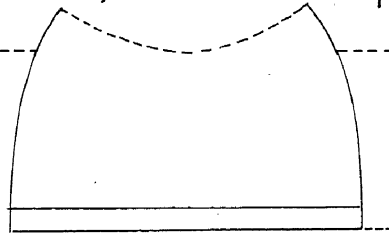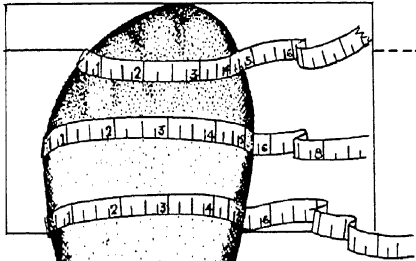
3. Constructing toe strap pattern.

4. Constructing heel pattern

$2\frac{3}{4}"$

$3\frac{1}{8}"$ $3\frac{1}{8}"$ $\frac{3}{4}"$

Ankle strap $\frac{3}{4}"$ · $8\frac{1}{2}"$
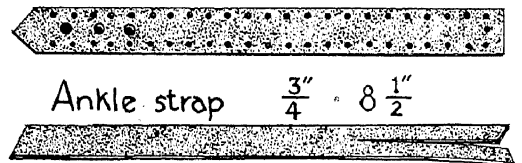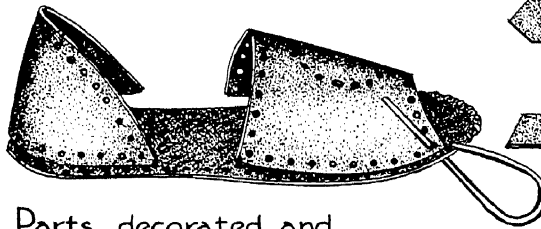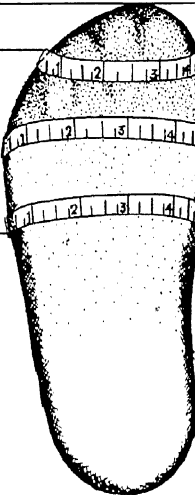
Parts decorated and assembled for lacing

Cut $\frac{1}{2}"$ straps for ties
See B
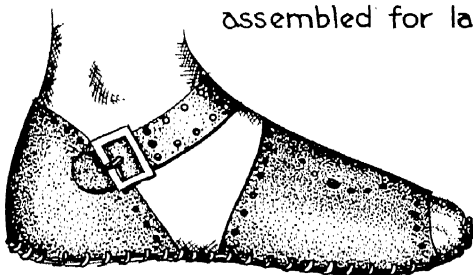
Side view of finished sandal
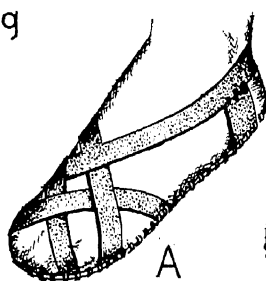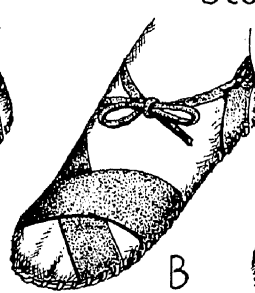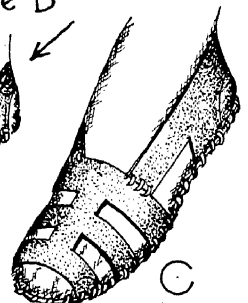
Other suggested designs

A   B   C

Plate 30. Sandals.

outside or at the beach.

Make the soles of the sandals of fairly stiff cowhide or steer hide. To make a pattern for cutting the soles, stand on a sheet of paper and trace around a foot, holding the pencil straight up and down. Use this pattern for cutting out the leather soles. Reverse the pattern to cut the sole for the other foot. Punch holes for ⅛″ lacing all around the edge of both soles. Space the holes ¼″ apart and ⅛″ from the edge.

Next make patterns for the toe strap. Measure over your foot in three places, using the tape measure as shown in the illustration on page 85. Use these measurements to make a paper pattern. After cutting the pattern it is best to try it over your foot to make sure it fits properly. The size of the opening at the toe can be changed to suit your desires.

When you have a correctly fitted pattern, place it on the leather and cut out one toe strap, then reverse the pattern to cut the other strap. Use a flexible cowhide for the upper parts. Place the toe straps in position on the sole and mark the location for the holes. Punch the holes ⅛″ from the edges. Decorate the toe straps in some way, either by tooling or stamping, or by punching holes in such a manner that they form some kind of design.

The pattern for the heel should be made next. Step 4 on page 85 shows the measurements for constructing the heel pieces. As with the toe strap, cut a pattern for the heel and then try it to find out if it fits properly. Since feet vary in size slight adjustments will have to be made to get the correct fit. Cut the two pieces of leather to size. Punch lacing holes in the heels corresponding to those in the sole.

Now, proceed to lace the upper parts to the sole, use the whip stitch, and lace all around the sole. With the lacing completed, you are ready to attach the straps and buckles.

Small buckles may be purchased, or you might have buckles from some worn-out shoes or slippers that you could use. The strap is ¾″ wide and 8½″ long. Make it of the same kind of leather as the upper parts of the sandals. The end of the strap is laced to the heel piece at the inside of the sandal. The buckles are sewed in place. Tie straps could also be used, in which case cut four ties, each ½″ wide and 8½″ long. Slit one end of each strap for a distance of about 2″. This is for tying the straps to the sandal.

Several different designs for sandals are suggested in the illustration.

Knife Sheath

Any boy scout or boy interested in the out-of-doors has need for a knife sheath. It also is a useful gift to the man who likes hunting and fishing. The knife sheath shown on page 87 is best made of tooling cowhide.

Place the knife along a straight edge on the flesh side of the leather and trace around it with a pencil or awl, allowing ⅜″ around the blade. Make the handle part of the sheath straight.

Cut out the leather. Then use the blade part of the sheath as a pattern for the front piece. Place the blade part of the cut-out piece on the leather with the flesh sides together and trace around as shown in Step 2. Cut out the leather.

Mark the holes for lacing about ¼″ apart and about ⅛″ from the edge of the leather. Punch the holes.

Hold the knife on the leather and trace directly around the cutting edge of the blade for the fringe piece. Make the fringe about 1½″ wide. Be sure to lay out the leather so that the grain side of the fringe piece will be showing in the finished sheath. Cut out the fringe piece.

Using one side of the sheath as a template, place it in the correct position on the fringe piece. Mark for holes by pushing a pencil point through each hole to make a dot on the leather of the fringe piece. Mark for two rows of holes. Make
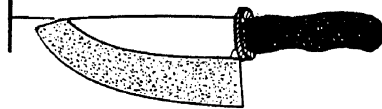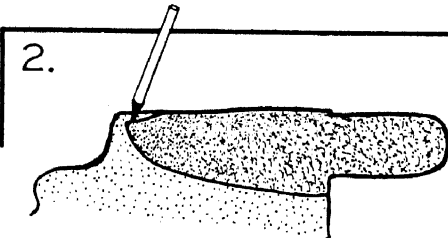
KNIFE SHEATH
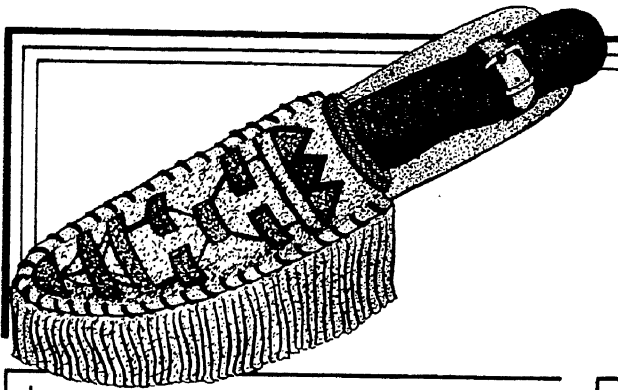
1.
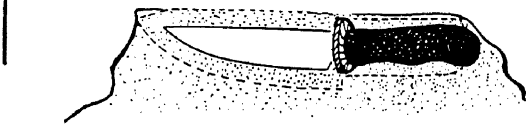
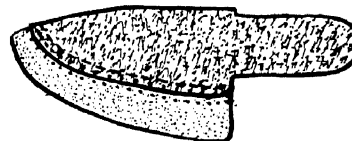Place knife on leather. trace line $\frac{3}{8}$ inch outside of blade and handle as shown.

2.

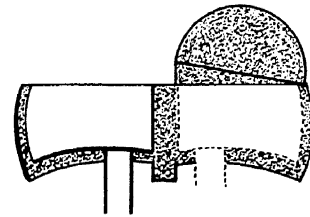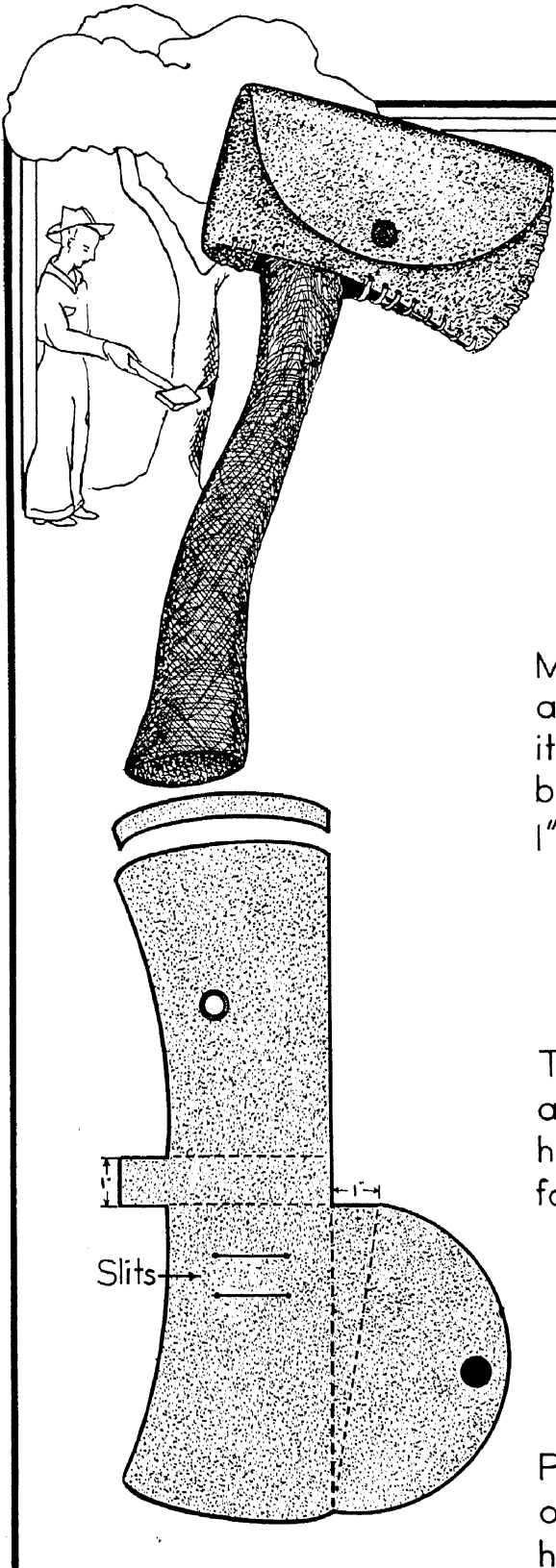Cut out and use blade part as a pattern for front piece.

3.

Put both sides of the sheath together. Punch holes $\frac{1}{4}$ inch apart and $\frac{1}{8}$ inch from the edge.
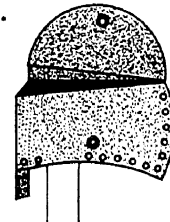
4.

Trace directly along cutting edge of blade for fringe piece.

5.

Use one side of sheath as a template and punch a double row of holes in fringe piece .

6.
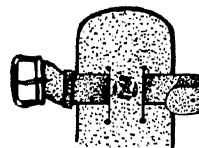
Sew on small strap with buckle to hold knife.

Plate 31. Knife Sheath.

AX SHEATH

Make a paper pattern. Lay ax on paper and trace around it leaving a $\frac{1}{2}''$ margin for the bottom and blade side. Allow 1" for back.

Trace paper pattern on leather and cut. Fold it over and punch holes through both sides. Allow for handle.

Slits→
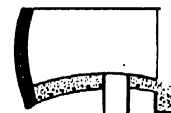
Put a strip of leather $\frac{3}{8}''$ wide on the blade side. Punch it with holes and lace it in.

Plate 32. Ax Sheath.

the rows ¼" apart. Using one side of the sheath as a template, mark for holes as shown in Step 5. Punch a hole at each dot on the fringe piece.

Draw pencil lines ⅛" apart for a guide to cut the fringe. A small wedge of leather might have to be cut out between fringes where the curve is sharp to make the fringes the same width. Cut the fringe with a sharp scissors. Stop each cut about ¼" away from the row of holes.

Cut two slits 1½" long and ½" apart in the handle part of the sheath. The slits are necessary to attach the knife sheath to a belt. Attach a small strap with a buckle to hold the knife in the sheath as shown in Step 6.

Any tooling or coloring may now be done before the sheath is assembled. Plan your design on thin paper. Trace the design on the dampened leather. Remove the design pattern and complete the tooling, keeping the leather moist. Stamped designs and straight line tooling will give the best results on the tooling cowhide. Color the design if desired, following the instructions given on page 26.

When the leather has dried skive the edges of the parts of the sheath that are to be laced together. Don't skive the fringe piece.

Lace the parts together, using the whip stitch. When the lacing is completed flatten it by tapping lightly with the mallet. Finish the sheath by giving it a light coat of wax and polishing with a soft cloth.

Ax Sheath

The camper or hiker who carries his hand ax on his belt needs a sheath for it as a means of protection. The sheath also preserves the edge from damage.

Use smooth heavy cowhide for making the sheath shown on page 88. Make a pattern by laying the ax on paper and tracing around the ax head with a pencil. The drawing shows how the pattern is made so that the sheath may be cut all in one piece. Be sure to allow the proper margins at the bottom and the edge of the ax. Also allow 1" for the back.

Place the pattern on the leather and cut along the outline, using a sharp knife. Have the leather lying on a piece of wood while making the cuts. Cut carefully along the curved lines so as not to produce ragged edges. Punch four small holes and connect them by slits for attaching to the belt.

Dampen the leather and make the necessary folds. Lines tooled in the flesh side of the leather help in making neat folds. To make neat folds on the flap, bend the leather back on itself and clamp it between two boards, using a vise or a C clamp. Bends made in this way take only a few minutes.

Fold the sheath into position and punch holes for the lacing. Rawhide lacing ⅛" wide should be used. Space the holes about 3/16" apart. A spring punch or a chisel-pointed drive punch may be used to make the holes. Punch through both sides of the sheath at one time. Be careful not to let the two sides slip while the holes are being punched.

Cut a ⅜" strip of leather to fit between the sides of the sheath at the blade end. Mark the holes in this piece and punch them.

Dampen the lacing, start at one end and lace the sides of the sheath. Leave enough space for the handle of the ax to be pushed through. If rawhide lacing is used, do not pull the stitch too tight as the rawhide shrinks when it dries and the sheath might be pulled out of shape.

Punch holes for the snap fastener, put the parts in place, and the sheath is ready for use.
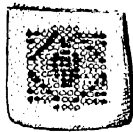
Indian Moccasins

Moccasins were the kind of footwear worn by American Indians. Early settlers in this country found moccasins to be much better than stiff shoes for walking through field and forest, and soon adopt-
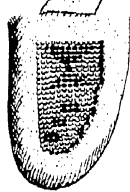
INDIAN MOCCASINS

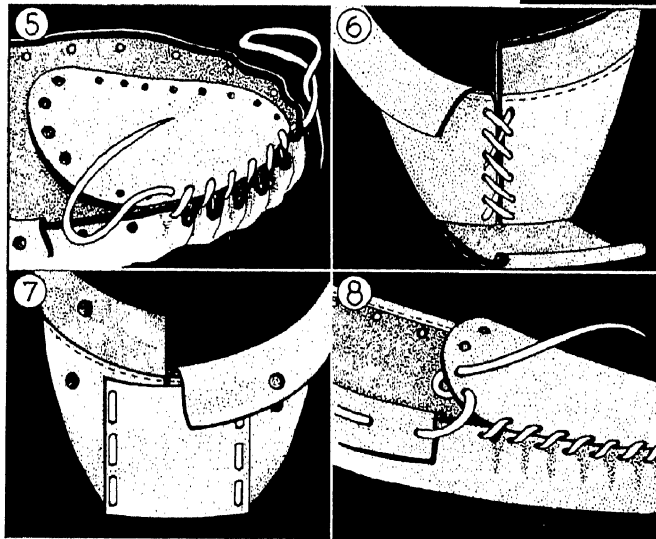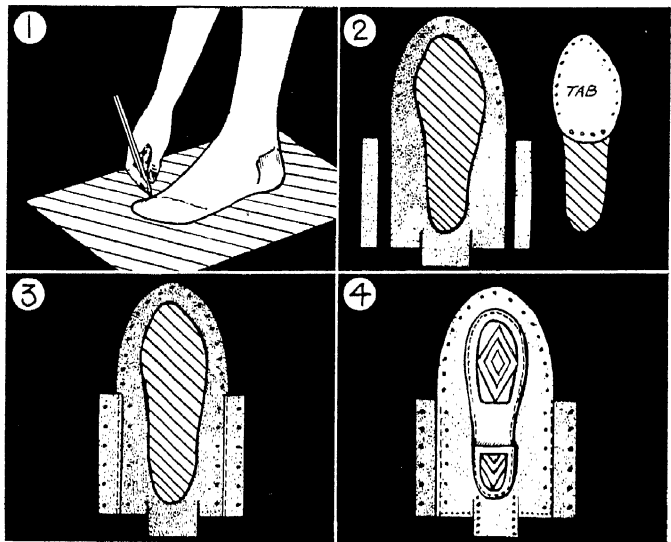Woodland

Plains

Beading on flap   Beading on toe

Plate 33. Indian Moccasins.

ed them. Different Indian tribes made moccasins of different types. The moccasins left different tracks in the earth, and experienced woodsmen could tell the kind of Indian who had made the track from looking at the footprints.

The boy who likes out-of-door activities can make himself a pair of comfortable moccasins patterned after the Indian type.

The moccasins shown on page 90 may be made of any soft leather such as cowhide or buckskin. Make a paper pattern by tracing around your foot while you are standing on the floor. Cut out the pattern, then place it on a piece of leather and draw an outline about ¾" outside of the toes and on both sides of the foot. The lines at the sides are drawn straight backward as step 2 on the drawing shows. The heel tab is 2¼" wide and extends 2⅝" behind the heel. The sides also extend 2⅝". Cut slits inward along the heel tab until they are opposite the heel. Next cut the toe tab, making it the same shape as the foot pattern.

Refer to the drawing and note where all the holes are to be located. Around the toe there must be the same number of holes in both tab and bottom. However, the holes on the edge of the bottom piece are slightly farther apart than those in the tab. Punch at least six holes in each edge of the tab and also in the back ends of the side pieces. Use an awl to make holes in the leather and sew on the extra sole shown in the drawing, using heavy linen thread that has been waxed.

Cut two flaps for each moccasin, 1" wide and about 5" long. The length will have to be adjusted to fit the moccasin since the length is not the same for all feet. Sew these flaps in place with waxed, linen thread as shown in step 6. Use a machine or sew them by hand. Then punch holes 1" apart for the lacing in both flaps and sides.

Form the leather to the shape of the moccasin and lace together both heel and toe using a heavy rawhide or buckskin lacing. Fold the heel tab up on the outside of the heel and mark the positions of the holes in the heel and punch them. Lace the heel tab in place. Next lace the toe tab to the moccasin.

Metal eyelets may be placed in each of the holes in the flaps and across the toe tab to keep the leather from tearing. Thread a long piece of lacing through them so that the ends may be tied over the instep to hold the moccasin in place.

If it is desired, beads may be attached to the toe tab. Sew each bead in place separately.

Leather Vest

Almost any boy would like to make a decorated leather vest for himself, such as those shown on page 92.

Make paper patterns from a regular suit vest. Patterns for the back and for the right and left sides of the front must be made. Make the pattern ¾" larger wherever a seam is to be made. You probably will want to round off the bottoms of the front pieces instead of having them pointed. If you are making the fringed jacket the bottom will be cut off squarely.

The leather for making the vest ought to be deerskin, but you can make a good looking vest from suede or sheepskin. Select a skin from which you can get pieces that are not marked by cuts or weak spots. Lay the patterns in place, trace around them with a pencil, then cut the pieces with a knife.

Sew the pieces together to form the vest. Sewing should be done with strong durable thread. A sewing machine does the job quickly, but the sewing can be done by hand.

The drawings show several ways of decorating the vest. The fringe and jewel vest is attractive and rather easily made. Cut two pieces of leather for making the pockets. Allow an extra amount for a turn-down flap on the outside. Cut separate pieces for the fringes and sew these
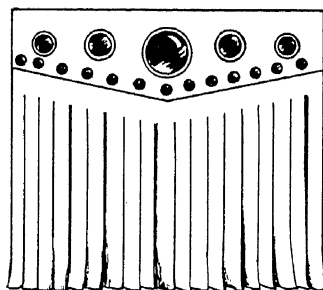
LEATHER VEST
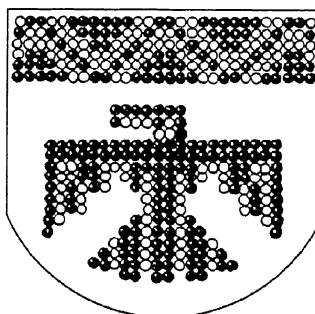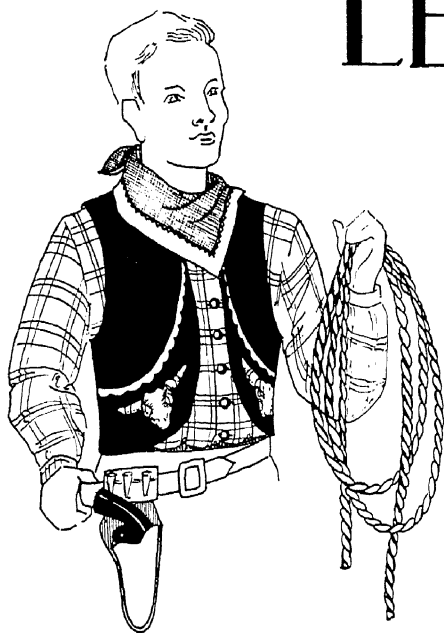
Beaded pocket using
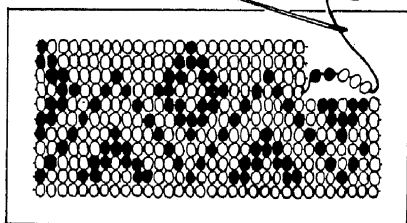both styles of beading

Fringe and jewel trim

Cut paper pattern from
suit vest allowing a three-
quarter inch seam on both
sides. Vary the general
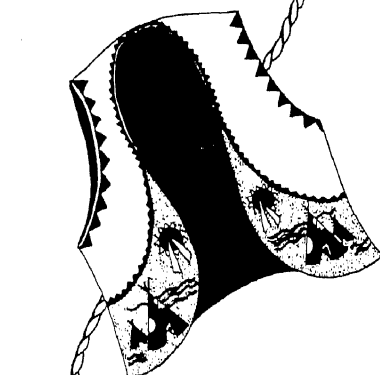plan of pattern to suit the
style of trimming chosen.

Folded flap is part of
solid pocket. Cut fringe
on separate piece and
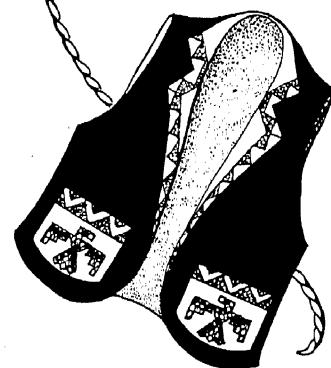sew under flap. Add
jewels and spots on flap.

Painted design on light
leather using India inks

Detail of beading on leather
String five beads at one time
and sew securely.
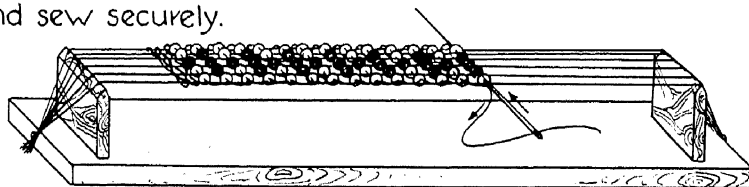
Type of handmade loom used for beading narrow
bands for belts and vest trimming

Suggested bead pattern

Plate 34. Leather Vest.

to the pocket pieces under the flap. Decorate flap with the jeweled ornaments. The prongs are pushed through the leather and bent over on the opposite side.

Sew the pockets onto the vest. Attach jewel ornaments to the neckline. Punch holes for the leather ties. Make the ties of a piece of rawhide lace; cut eight of them 6″ long. Tie a knot in one end of each and pull the ties through the holes. These may then be used to fasten the vest when it is being worn.

Beaded Vest

Beaded vests are also attractive. Maybe you would prefer to make one of them. Make the vest with rounded corners at the waistline.

If the leather you are using is light colored or natural, you can add to the decoration by coloring portions of it. Use dyes or stains of the proper color to get the effect you want. Directions for coloring leather with dyes or stains are given on page 26. Be careful that the stain does not creep outside the area you wish to color.

Beadwork on the vest adds a great deal to its appearance. Beads can be sewed on a few at a time, or bead bands may be made and stitched in place. The bead pattern should be planned on paper first. Transfer the pattern to the leather; then use a beading needle and strong waxed thread to sew on the beads. Five beads at a time are strung on the needle, then a stitch is taken in the leather. You may have to make holes for the needle in some places; if so, use a sharp awl. Bead the entire pattern in this manner.

Making a Beaded Band

If you are making a beaded band for decoration, first make a simple loom like the one shown in the drawing on page 92. Threads for the warp are waxed and strung over the uprights and tied to a tack at each end.

The beading needle is threaded and the beads are sewed to the warp a row at a time. The needle is pushed through all the beads on top of the warp, then it is pushed back through the beads, this time below the warp. Each row is sewed on in this way. When the design is finished weave the thread in and out across the warp several times. Cut the work and then thread each of the warp threads back through three or four of the beads. This keeps the band from coming apart.

Sew the completed band onto the vest with the whip stitch; use strong waxed thread.

You may use any of a great number of patterns for the beadwork. If you do not want to use one of those illustrated, you will find other designs in books on Indian beadwork.

Caring For Shoes

Our shoes are important articles of wearing apparel. We wear shoes in order to be properly dressed; in addition, we wear them to protect our feet from injury. In order that we may have comfortable shoes in all kinds of weather shoe manufacturers make many kinds and styles of shoes.

Generally, when we buy a pair of shoes we expect to get considerable wear from them. If proper care is taken of shoes they will last much longer than if they are uncared for. Of course, even with normal use, shoe soles wear through and heels become rounded off.

Added wear can be had from shoes if they are half-soled and have new heel lifts put on. Both of these jobs can be successfully done by the amateur repairman. Although the best job of repairing requires that the half sole be sewed in place, a satisfactory job can be done by nailing the new soles onto the shoes. Nailing is by far the easier method for the inexperienced workman and is illustrated on page 95.

A shoe **last** is necessary when shoe repairs are to be made. This is an iron form that fits inside the shoe. Its purpose is to

hold the shoe and to clinch or bend over the nails. The last fits over a stand that should be firmly mounted on a solid base. The tools and equipment needed are a hammer, shoe knife, awl, pincers or nippers, a coarse file, sand or garnet paper, brown and black edge ink, and shoe nails. You will also need leather for half soles and heels, or rubber heels if you prefer them. The necessary tools and equipment can generally be bought in local hardware stores. Leather half soles and rubber heels can also be bought there or in ten-cent stores.

When shoes are to be repaired, select a last that fits easily into the shoe and place it on the stand. Begin by removing the outer layer of the sole. Use a knife to cut the stitches if the worn sole is sewed on; use pincers if it is nailed on. Starting at the toe, insert the point of the knife between the sole and the welt and cut the stitches. Work toward the heel on both sides. Be careful to cut only the stitches that hold the sole in place, and not those that hold the welt.

If the sole is nailed on it should be removed with the pincers. Start at the toe and bend the sole backward at the same time it is pulled up, this is shown in the drawing on page 95. When the shank is reached, whether the sole was nailed or sewed, cut the sole off at an angle as shown in the drawing. If any nails remain in the shoe pull them out or cut them off with the nippers. Skive the end of the sole remaining on the shoe.

Place a piece of sole leather rough side down over the shoe. Mark around the shoe with a pencil or the back of the knife blade. Then cut the sole roughly to shape about ⅛″ outside of the line.

Soak the sole in water to make it more pliable. Skive the half sole on the rough side so that it will make a good joint with the shank. Do not skive the sole too thin or the nails will not hold.

Place the sole on the shoe to see if the joint fits properly. If it does, drive two or three nails into the sole to hold it in place. Nail the sole in place driving nails about ¼″ apart all around the edge. Slant the nails toward the inside. Use nails about ¼″ in length. Drive a double row of nails across the splice.

Now, trim the edge of the sole carefully down to the welt. Use a sawing motion while holding the knife as shown. Work carefully and avoid cutting into the welt or the upper. Next, take the file and smooth the edge all around. Follow up with sandpaper wrapped around the file. Remove the sharp edge of the sole, the **arris**, by rubbing with sandpaper.

Apply edge ink to the edge and, if you wish, the bottom of the sole and polish with a brush or a cloth. The other shoe is repaired in the same manner.

Repairing Heels

When shoe heels become rounded and worn it is time to put new ones in their place. Rounded heels do not let the foot rest firmly and they do not look well. The home craftsman should have no trouble putting new heels on shoes.
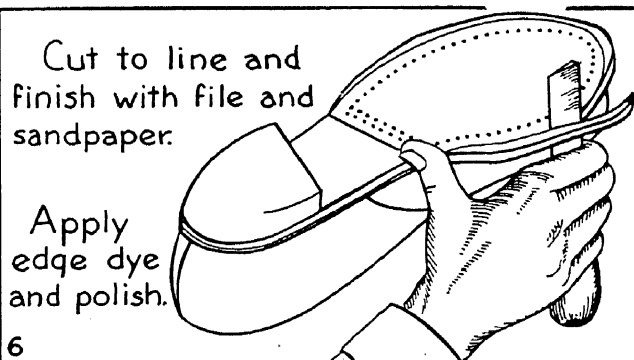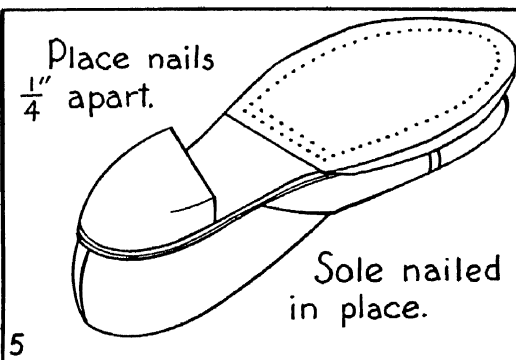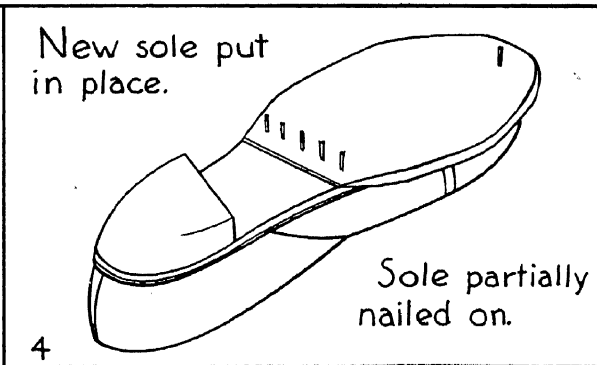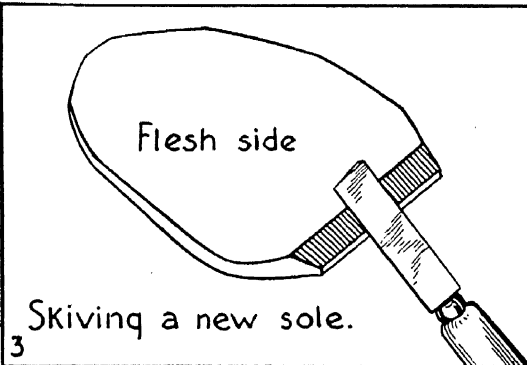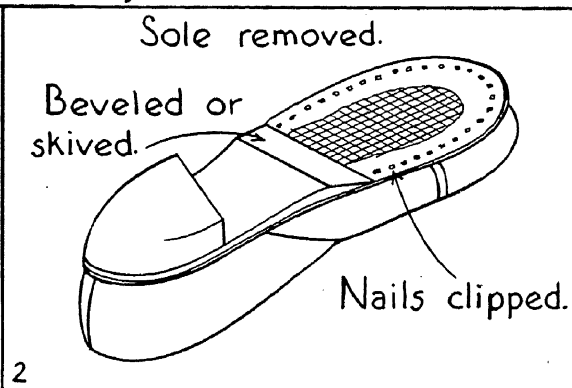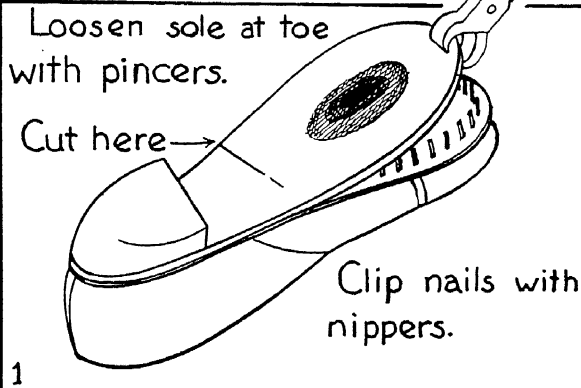
Heels that are built up of several layers of leather or that have an outer layer of rubber are easy to repair. Place the shoe over the last and pull off the worn layer with the pincers. Usually only the top layer, the lift, has to be removed, but sometimes the next one must be taken off also.

Clip off any nails that stick out when the lift has been removed, then file the heel smooth. If the next layer has also been rounded, either file it off smoothly at an angle or cut off the rounded part straight across the heel. In either case, a new piece is trimmed to fit where the leather was removed. Nail the piece to the heel.

Now, lay a piece of leather flat on the heel and mark around it using a pencil or the back of the knife. Cut out this piece about 1/16″ outside the line. Again place it on the heel and nail it securely in place.
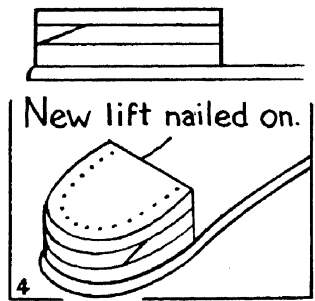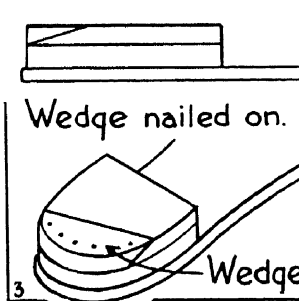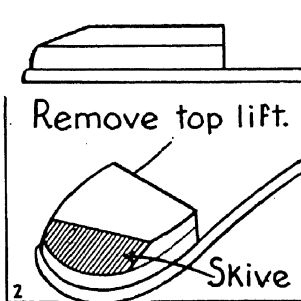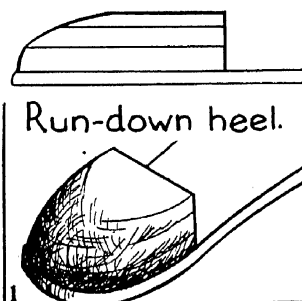
REPAIRING A SHOE

Half soling

Loosen sole at toe with pincers.

Cut here →

Clip nails with nippers.

1

Sole removed.

Beveled or skived.

Nails clipped.

2

Flesh side

Skiving a new sole.

3

New sole put in place.

Sole partially nailed on.

4

Place nails $\frac{1}{4}''$ apart.

Sole nailed in place.

5

Cut to line and finish with file and sandpaper.

Apply edge dye and polish.

6

Repairing the heel

Run-down heel.

1

Remove top lift.

Skive

2

Wedge nailed on.

Wedge

3

New lift nailed on.

4

Plate 35. Repairing a Shoe.

Use nails ½″ long and drive them about 3/16″ apart around the edge of the heel. A double row of nails at the back helps the heel to wear longer.

If rubber heels are to be put on, choose one slightly larger than the shoe heel. Nail it in place and set the nail heads with a nail set. Feel inside the heel to make sure no nails protrude into the shoe.

The next operation is to trim the new heel lift, either leather or rubber, to the same size as the rest of the heel. A file and sandpaper are used for doing this job. Be careful not to scuff the upper. When you have a smooth surface apply edge ink of the same color as the shoe and then polish it.

Rubber or composition lifts are best finished by cutting off the excess as smoothly as possible with the knife and then by using sandpaper.

Heel lifts on women's shoes are replaced in the same manner. Most heels on these shoes are made of wood. Care must be taken when nailing on the new lift to keep the nails nearer to the center of the heel. If they are driven in close to the edge it is likely that the heel will be split.

Finish the heels in the usual way by smoothing the new lift to the size of the heel and then applying edge ink and polishing.

Cleaning and Polishing Shoes

Shoes, like any article of leather, require care. Everyone likes to keep his shoes looking well, and to keep them that way is not hard. Smooth leathers can be given a polish by applying a coating of wax polish, followed by rubbing with a cloth, brush, or sheepskin buffer. Rub only long enough to make the wax appear glossy; long hard rubbing does no good. Polishes made with turpentine dry the leather.

Shoes should be clean before being polished. Saddle soap is one of the best cleaners for smooth leathers. To clean shoes with this soap, use a damp sponge or a cloth. Daub the cloth in the soap and rub over the surface of the leather. The lather that is worked up softens and removes the dirt and old polish. Next, rub the shoes with a soft clean cloth, then allow them to dry. After the polish has been applied, the shoes should have almost their original appearance.

Suede and buckskin are best cleaned by brushing either with a stiff-bristle brush or a fine-wire brush. This removes the dirt and restores the nap of the suede, improving their appearance.

Shoes should be kept as dry as possible. However, we cannot always avoid getting them wet. When shoes are wet they should have shoe trees placed in them so that they dry smoothly. Wet shoes should be placed so air can circulate all around them. They should never be placed on a register, radiator, or in an oven to dry; fast drying makes the leather hard and liable to cracking. Shoe trees habitually used after wearing, cause shoes to keep their shape longer.

Proper care of shoes, as with all articles of leather, results in longer life and better appearance.

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GENERAL SUPPLY COMPANIES

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